Psychological Monographs:

General and Applied

No. 293
1948

Leon J. Yarrow

Vol. 62
No. 6

The Effect of Antecedent Frustration on Projective Play

By

Leon J. Yarrow

Edited by Herbert S. Conrad
Published by The American Psychological Association

Psychological Monographs:
General and Applied

Manuscripts should be sent to the Editor. For suggestions and directions regarding the preparation of manuscripts, consult the following article: CONRAD, H. S. Preparation of manuscripts for publication as monographs. *J. Psychol.*, 1948, 26: 447-459.

Correspondence concerning business matters (such as subscriptions and sales, change of address, author's fees, etc.) should be addressed to: DR. DAEL WOLFLE, American Psychological Association, 1515 Massachusetts Ave., N.W., Washington 5, D.C.

VOLUME 62
NUMBER 6

WHOLE NO. 293
1948

Psychological Monographs

General and Applied

Combining the *Applied Psychology Monographs* and the *Archives of Psychology* with the *Psychological Monographs*

HERBERT S. CONRAD, *Editor*

The Effect of Antecedent Frustration on Projective Play

By

LEON J. YARROW

Child Research Council
School of Medicine
University of Colorado

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, in the Child Welfare Station, in the Graduate College of the State University of Iowa

Accepted for publication, June 11, 1948

Price $1.00

Published by

THE AMERICAN PSYCHOLOGICAL ASSOCIATION
1515 MASSACHUSETTS AVE., N.W., WASHINGTON 5, D.C.

ACKNOWLEDGMENT

This is the sixth in a series of studies of projective doll play, conducted at the Iowa Child Welfare Research Station under the direction of Dr. Robert R. Sears. The writer wishes to express his sincere appreciation to Dr. Sears for his guidance throughout the course of the study.

He is deeply indebted to the members of the nursery school staffs of Cornell University, Harvard University, Hecht Community Center, Ruggles Street Nursery School, and the University of Iowa for their generosity in giving of their time and facilities.

LEON J. YARROW

TABLE OF CONTENTS

Chapter I

INTRODUCTION

A. *Statement of the Problem*

THE use of play techniques in diagnostic and therapeutic work with children has spread far beyond the circle of child analysts where they had their inception (15, 17). Because of its simplicity in procedure and materials, and the rich insights it has given into the dynamics of child behavior, the doll play technique is becoming widely used both in diagnosis and therapy, and in research in child psychology.

The growth in the application of this technique has necessitated increased concern with the methodological problems of its validity and reliability. Implicit in the use of doll play as a clinical diagnostic tool is the assumption that the child's play fantasies are related to his motivational systems. A corollary assumption would be that a child's patterns of play fantasy show some degree of consistency from one situation to another, and are not significantly changed by momentary or situational needs which are not integrated in his basic motivational system.

It is the purpose of this study to test the latter assumption by investigating the effects on projective doll play of antecedent frustrations.

This problem would seem to have practical implications for the clinician, inasmuch as in the ordinary clinical situation, the clinician usually has no knowledge of the immediately antecedent experiences of the child. In the interpretation of his play, therefore, the possible effect of these experiences on his fantasy is not taken into account. If the projective play of the child is appreciably influenced by immediately antecedent frustrations or other emotionally disturbing conditions, the clinician may obtain a highly distorted picture of his characteristic responses and major motivations.

In addition to the practical implications of this problem for the clinical use of doll play, this study was designed to investigate the theoretical problem of the relation between frustration stimulation and projective play behavior. The specific situation studied was that of the effects of an ego involving and a non ego involving frustration experience on doll play behavior. Both failure and satiation were employed as experimental conditions to induce frustration, because it was hypothesized that they differ in ego involvement. Failure involves interference with the execution of a goal response, which the person is unable to make because of his own limitations in ability. Satiation, on the other hand, involves repetition of an instrumental act or goal response to the point where continuance of the act becomes distasteful. The satiation situation takes on the character of a frustration situation when the subject discovers that he is unable to escape from this unpleasant task. In the satiation situation, the experimenter is more clearly defined as the frustrating agent, while in failure the person is more likely to see himself as the source of frustration.

Many studies have been reported indicating the effects of frustration on overt behavior. Of the variety of frustration responses noted, the major ones reported have been aggression (9), retrogression (11), regression (3), withdrawal from the situation (7), decreased sensitivity to the realities of the environment (7), and decreased activity level (10).

B. *Studies on the Effects of Antecedent Conditions on Projective Behavior*

That responses to projective stimuli reflect the major drives of the person is a fundamental assumption underlying their clinical use. However, the sensitivity of projective techniques to momentary states of the organisms has not been given much consideration. There have been a few attempts to investigate the effects of experimentally induced states and situational influences on responses to projective materials.

Murray (26) in an informal study of several eleven-year-old girls at a party found that their estimates of the maliciousness of faces on pictures increased following an exciting game of murder. He concluded that "these effects may be attributed to complementary apperceptive projection subsequent to the activation of an emotional state."

Sanford (35) studied the effects of hunger upon the imaginal processes. He found that the frequency of food responses to ambiguous stimuli—picture completion, word completion, and word association tests—varied directly with the strength of the hunger drive.

Leuba and Lucas (20) found that hypnotically induced states of anxiety and criticalness influenced the interpretation of picture material. The interpretation of identical pictures by the same subjects varied with an hypnotically induced happy mood, an anxious one, and a critical mood. The authors suggest that "further experiments may be designed to discover what incidents typical of everyday life can create such powerful directive attitudes, how these attitudes exercise their effects on perception and thought, and how these effects might be controlled."

The effect of frustration on responses to the Thematic Apperception Test was studied by Rodnik and Klebanoff (31). Two groups of twelve subjects, a well-adjusted and a poorly adjusted group, were frustrated on a motor task. The poorly adjusted subjects showed, following frustration, an increase in aggressive themes, and a decrease in themes dealing with superiority and with emotional states. The well-adjusted group showed an increase in themes dealing with emotional states.

Kimble (16) studied the effects of being in a social situation on the Rorschach responses of fourteen college students. Compared with their responses in a standard testing situation, the subjects gave significantly more color (extravertive) responses, and fewer movement (introvertive) responses in the social situation. He concludes that the Rorschach protocol is easily susceptible to environmental influences. He points out the sysematic implications of these findings for trait theories of personality, as opposed to theories emphasizing the importance of situational influences on personality.

These few studies indicate that antecedent experiences and situational factors affect perceptual responses to projective materials. However, there have been no studies on the effects of antecedent conditions on more complex projective behavior as measured by play techniques. It was hoped that the findings of the present study might bear on this problem.

The effect of antecedent frustration on doll play behavior was studied by comparing the behavior of children subjected to antecedent failure or satiation experiences with that of a control group of children who had a nonfrustrating experience preceding doll play.

Chapter II

METHOD

I. *Subjects*

THE subjects were 60 preschool children, 30 boys and 30 girls, ranging in chronological age from 3-0 to 5-7. The mean age of the group was 4-6. The children were in attendance during the spring and summer of 1935 in nursery schools at Cornell University, Harvard University, Ruggles Street Nursery School (Boston), and Hecht Community Center (Boston). The children came from homes of various socioeconomic levels, ranging from low middle to professional.

All of the children were normal in the sense of their being free from any extreme behavior difficulties. Some of the children were known to have had problems in connection with parental or sibling relationships; some showed minor difficulties in adjustment in the nursery school, but none of these was considered severe enough to require special psychiatric attention.

II. *Procedure*

A. *General procedure.* The subjects were randomly assigned to three groups, control, failure, and satiation, using a table of random numbers (22). Boys and girls were assigned to groups separately so as to insure an equal number of both sexes in each group. There were 20 children in each group, 10 girls and 10 boys.

Each child participated in two 30-minute doll play sessions. The interval between the first and second sessions was one or two days. All the children were subjected to the same conditions during the doll play sessions. They were given identical materials and instructions by the experimenter, and the experimenter used the same interactional techniques during doll play.

Before beginning the study, the experimenter spent some time in becoming acquainted with the children in the nursery schools, so that rapport in the doll play situation might be more easily achieved.

Each child was taken from the preschool group by the experimenter who gave the following explanation: "I have some toys for you to play with in the other room. We'll go in to see them now." No child was taken when he seemed to be deeply involved in an interesting activity or if he was reluctant to come.

In order to minimize the effects of extra-experimental conditions on the behavior of the child during play, teachers were interviewed to determine whether the child had any unusual or disturbing experiences in the previous twenty four hour period. In addition, in one nursery school group, parents' reports were available on the child's experiences in the home during the preceding day. If the child was reported as having been subjected to any unusually disturbing or frustrating experiences, he was not included in the experiment on that day.

The conditions preceding the first session of doll play were the same for all children. They played with tinker toys or simple jigsaw puzzles for fifteen minutes in a room adjoining the doll play room. The experimenter endeavored to create a free, happy, atmosphere, and to prevent their experiencing any failure with the materials.

B. *Conditions Antecedent to the Ses-*

ond Doll Play Session. The experimental conditions were introduced immediately preceding the second doll play session.

1. *Control conditions.* Before the second doll play session, the child was taken into a room adjoining the doll play room where he spent fifteen minutes in solitary play with tinker toys or simple jigsaw puzzles. The experimenter attempted to make this a pleasurable, satisfying experience for the child by praising liberally his tinker toy productions and his skill at the jigsaw puzzles. Care was taken to avoid inducing feelings of failure or incompletion with these materials.

2. *Failure conditions.* Immediately before the second doll play session, the children in this group were placed in a situation designed to induce feelings of failure. They were given tinker toys and and a model of an attracive tinker toy windmill, which although simple in appearance, was difficult to construct. (A picture of the windmill is given as Plate 1.) Selection of the failure task was based on the following criteria, which are similar to those of Keister (47):

a. The task should be such that the child achieves some success at the beginning so that he becomes involved.

b. The task should have a definite goal, simple enough for the child to have always in mind.

c. The task should be such that the child sees himslf as the instrument of failure.

d. The task should be intrinsically interesting and not solely dependent on motivation created by the experimenter.

e. The task should stimulate trial-and-error behavior rather than easy withdrawal.

f. The task should not vary greatly in interest-value for boys and girls or for younger and older children within the preschool age range.

Each subject was introduced to the tinker toys and the windmill with the following instructions: "Here's a Dutch windmill. You see you can turn the wheels around. You can have lots of fun playing with the windmill. Some other nursery school girls and boys made some just like this one, and had fun making it, too. You make one just like this one, and then you can play with the one you make. You can go right ahead and make one now. I'm going to do some work over here while you're making your windmill."

By way of introduction, the child was allowed to turn the wheels on the model windmill. Then it was moved some distance out of his reach, and he was not allowed to handle it, but was told that he could play with his own as soon as he completed it. If at any time during the session the child protested that he could not make it, the experimenter said, "You try, I think you can make one. Some of the other boys (or girls) made some just like this one and had lots of fun playing with it." Some children asked whether they could take their windmills home to show their parents or to the preschool to show the other children. The experimenter promised that they would be allowed to do this when they finished the windmill.

The experimenter gave further failure-stimulation toward the middle of the session in the form of a disparaging comment, such as, "That doesn't look much like this one," if the child's construction was obviously very different from the model. If the child's construction was somewhat similar to the model, he said, "I thought you would have

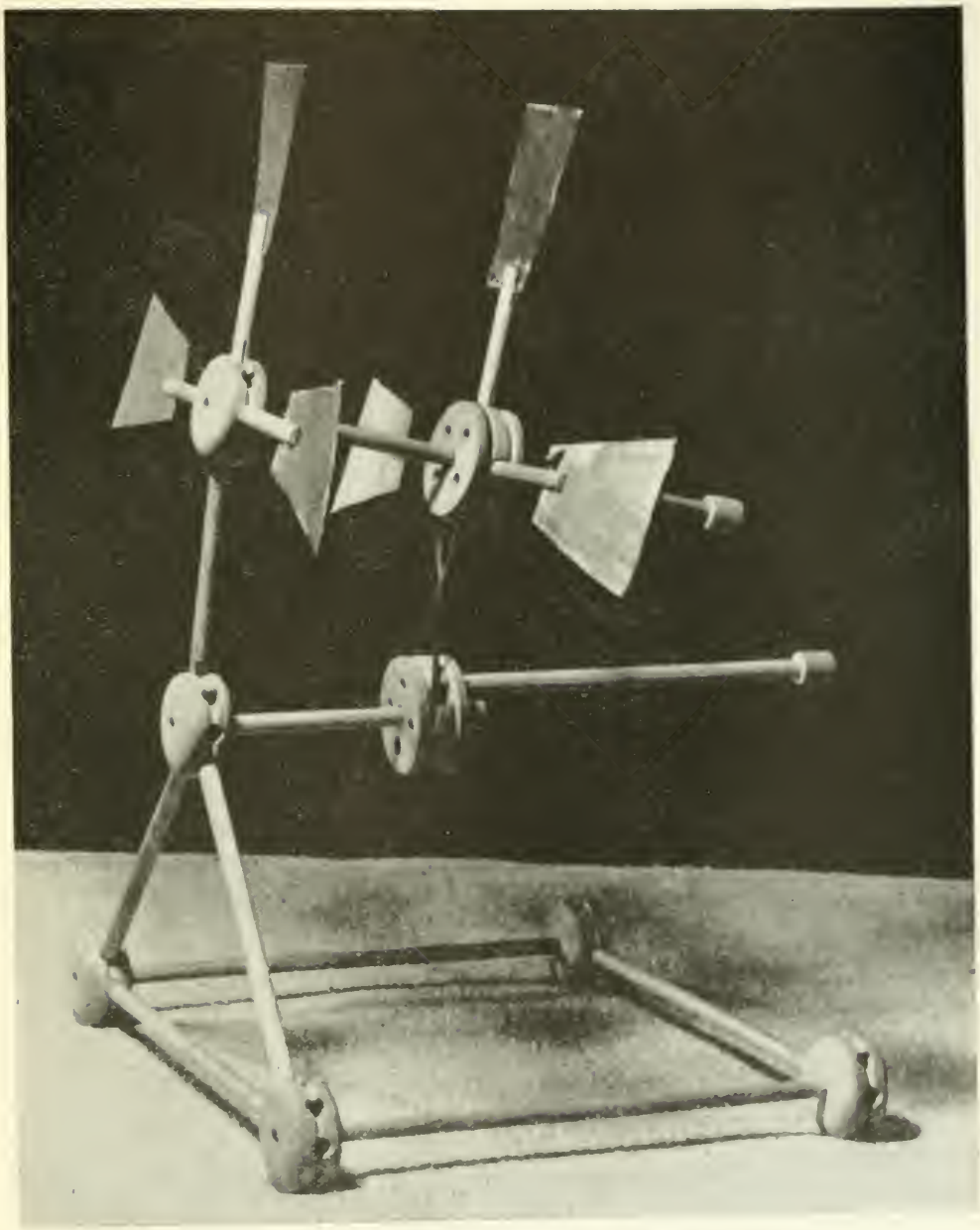


PLATE 1. Tinker-Toy Windmill Used as Failure Task.

yours all done by now so that you could play with it."

Immediately before ending the failure session, the experimenter said to the child, "I thought you would be able to make one because the other boys (or girls) did, and they had so much fun playing with it."

3. *Satiation conditions.* Children in this group were given a task designed to induce satiation. This task was similar to the one used by Burton (5). Immediately before the second doll-play session, the child was taken into a room adjoining the doll-play room where he found two pegboards (each 21 by 12 inches) and a box containing 500 pegs. He was given the following instructions, "Here is a board with all the pegs out. I want you to put them all back in the board where they belong. You go ahead and put them in the board while I work over here." The children remained at this task 20 to 30 minutes. The experimenter did not initiate any interactions with the child, except that when the child gave indications of wanting to stop working, the experimenter encouraged him to continue. The session ended when the child refused to continue the task, despite the experimenter's insistence. If the child did not voluntarily stop after thirty minutes, the experimenter told him it was time to leave for the doll-play room.

Running account records were taken of all the experimental sessions preceding the doll play. At the end of the failure and satiation sessions, the experimenter rated the child on the intensity of his failure or satiation reactions. (The ratings were made on the basis of a five-point scale ranging from no apparent frustration reaction to very strong reaction). In addition, on the basis of the running account records, independent ratings were made of the degree of failure or satiation shown by the child.

Schematization of conditions preceding doll play

	Session 1	*Session 2*
Control group	Non-frustrating solitary play	Non-frustrating solitary play
Failure group	Non-frustrating solitary play	Failure task
Satiation group	Non-frustrating solitary play	Satiation task

C. *Doll Play Materials.* The doll play materials consisted of a set of miniature wooden household furniture, beaverboard walls, and five dolls. The materials were organized as a house, with living room, dining room, kitchen, bathroom, and two bedrooms, separated by the walls. The dolls were lined up on the floor in front of the house, which was 38 inches long and 25 inches wide (see Plate 2).

The pieces of furniture (from 2½ to 4½ inches in height) for each of the rooms were as follows:

Living room: sofa, two easy chairs, radio, and a small circular table.

Dining room: large circular table, five chairs.

Kitchen: stove, sink, refrigerator, rectangular table, three kitchen chairs and a high-chair. (The seats of the chairs were covered with sandpaper to lessen the likelihood of the dolls sliding off.)

Bathroom: tub, toilet, and sink.

Master bedroom: double bed, dressing table, and crib.

Children's bedroom: two single beds, chest of drawers.

The walls, consisting of strips of beaverboard with projecting bases, were three inches high, and of varying lengths.

The dolls, representing members of a family, consisted of the father and mother, 6 inches and 5¾ inches tall, respectively; a young boy, 3½ inches tall; a young girl, 2½ inches tall; and a baby,

PLATE 2. Doll Play Materials.

1¾ inches tall. The mother and girl wore housedresses; the father, a suit; the little boy, a shirt and overalls; and the baby, a long dress. The dolls, made of string with a wire base, were very flexible and easily manipulated. They could be made to sit, but could not stand without support.

D. *Doll Play Procedure.* The subject was introduced to the doll house by the experimenter, who pointed out all of the rooms and made certain that the child identified each of the dolls. The following instructions were given: "See, here are all the toys. You see this is a house. Here's the kitchen, here's the dining room, living room, bedroom, bathroom, and here's another bedroom. And here are the people who live in the house. Who do you think this one is (pointing to the father) and this one? (Each doll was identified in this manner.) You can play with them any way you like. You can make them do anything you want. Some children like to make up stories about them."

Throughout the doll play session, the experimenter sat on the floor a short distance away from the child, and recorded the child's play in terms of the categories described in section *E* below. The experimenter made between fifteen and twenty interactions with the child during each five minutes of play. This was the high-interaction procedure described by Pintler (28). These interactions consisted in: answering the child's questions briefly and simply; showing an interest in what he was doing, by watching actively; repeating what the child said, or verbalizing the child's action; smiling and laughing when the child smiled or laughed; and giving a reassuring smile or matter-of-fact statement after an aggressive incident. The experimenter carefully avoided suggesting any plot or play content, or changing the direction of an ongoing theme. If the child showed tangential behavior by leaving the doll-play situation either physically or psychologically, the experimenter, after a lapse of one minute of tangential behavior attempted to direct his attention back to the materials by saying, "And what happens next?" or "What are the dolls going to do now?", or by repeating part of a previous sequence, and ending the repetition in an expectant tone.

At the end of thirty minutes, the experimenter concluded the session by saying, "Well, our time is up now. It's time for us to go back to the nursery school. That was fun. I liked watching you play. Maybe you can come play with the toys some other time again."

After the second doll-play session, an attempt was made to dispel any frustration feelings in the children who had been subjected to the failure experience by giving them a successful experience with the tinker toys. Each child was brought back to the experimental room and helped to complete the windmill. The experimenter attempted to help as unobtrusively as possible so that the child might feel that he was able to complete it by himself. The child's production was lavishly praised.

E. *Doll Play Observation Categories.* Most studies on doll play have presented complete running accounts of the behavior of the child. These reports, although interesting from a clinical point of view, have not permitted generalizations or comparisons based on pooled data from a number of subjects. Since it was desired to obtain quantitative data for the purposes of this study, doll play behavior was recorded in terms of a

limited number of predetermined categories which were chosen after observations of many sessions of children's play. The categories used were similar to those developed by Phillips (27) and Pintler (28), with some additions and changes. Although much of the variety and unique content of the children's play was lost through the use of these categories, it was thought to be a necessary concession in order to obtain quantitative data.

The child's behavior during the doll play session was recorded every fifteen second in terms of one of the categories presented below. A timer which buzzed every 15 seconds was used as a signal. If more than one kind of behavior occurred during any interval, the dominant behavior—that behavior which was estimated to have occupied more than half of the 15-second interval—was recorded.

Each separate act of aggression during a 15-second interval, as well as the instigator and recipient of the aggressive act, was recorded on a separate line of the recording sheet. One act or behavior-unit of aggression was distinguished from another by a change in the instigator or recipient of the aggression, a shift in theme, or a change in the kind of behavior, e.g., from stereotyped to nonstereotyped.

Each of the behavior categories is defined below. The symbol used in recording is given in parentheses.

1. *Routine thematic* (R). All thematic action or verbalized fantasy with the dolls or materials which is reproductive of routines as carried on in the "average" home, i.e., thematic action appropriate to the time, place, situation, and characters involved.

Examples: Eating meals, washing dishes, sleeping, bathing, dressing, sitting in living room, listening to radio, mother or father going to work, children going to school, caring for the baby.

2. *Individualized thematic (X).* All thematic action with the dolls or materials or verbalized fantasy representing situations outside of the routines as defined above.

Examples: Playing war, robbery, going to jail, taking train or airplane trips, earthquakes, bombings.

3. *Inappropriate thematic (R_x).* This category included all routine thematic action inappropriate to an ongoing theme, such as inappropriate use of the materials or verbalization inappropriate to the theme.

Examples: Putting stove in bedroom, sleeping in kitchen, lying on table, sleeping under chairs.

4. *Organizational (O).* All purposeful or systematic arranging of the materials, either setting them up, rearranging or disorganizing a previously organized pattern, verbalization regarding the placement of the materials, without active manipulation.

5. *Exploratory (E).* Activity which is directed primarily toward familiarizing the child with the materials. It may include manipulation of the toys, such as picking them up, fingering them with an interest in their construction or use; questions about the use or construction of the materials; visually surveying the materials at the beginning of a session, prior to or after organizational or thematic behavior; naming, counting or identifying the dolls or furniture.

6. *Tangential (T).* All behavior not directly related to the experimental situation or using the materials. Interruption of a thematic sequence occupying more than half of a 15-second interval.

Examples: Looking out of the window, asking the experimenter irrelevant questions, walking around the room.

7. *Tangential play (P).* Nonthematic behavior utilizing the toys, such as random manipulation of the materials, aimless pulling, swinging, pounding or holding of the materials.

8. *Aggression.* All behavior involving injury or depreciation of an object or person, expressed directly by the child or through the medium of the dolls. (Interpretations in accordance with the definition of Dollard *et al.* (9).)

The instigator and recipient of each aggressive act was indicated by the following symbols:

m mother

f father

TABLE 1

EXAMPLES OF AGGRESSIVE BEHAVIOR IN DOLL PLAY

STEREOTYPED AGGRESSION	NONSTEREOTYPED AGGRESSION
I. *General*	I. *General*
1. Arguing, quarreling	1. Hitting or beating, vigorously and injuriously
2. Commanding (in aggressive tone)	2. Kicking, knocking down
3. Scolding	3. Jumping on, crushing, breaking
4. Threatening	4. Throwing out window
5. Criticism of behavior	5. Stuffing into and under furniture, including stove, sink, toilet
6. Depreciation of person	6. Doll assuming role of witch, giant, animal, inanimate object with destructive consequences
7. Attribution of bad qualities	7. Trapping
8. Swearing	8. Killing
9. Teasing	9. Any hostile or destructive acts of which the child would be incapable in real life
II. *Parent to child (dolls)*	II. *Parent to child (dolls)*
1. Any of the general examples	1. General examples
2. Sending to bed	2. Hitting
3. Sending away from table	3. Hiding from children
4. Isolation	III. *Parent to parent*
5. Deprivation	1. General examples
6. Spanking or slapping	2. Physical fighting, e.g., hitting, kicking, spanking
7. Refusal of requests	IV. *Child to parent*
8. Restriction or prohibition of activity	1. General examples
9. Forcibly taking away objects	2. Spanking
III. *Parent to parent*	V. *Child to child*
1. General examples	1. General examples
IV. *Child to parent*	VI. *Subject to dolls or equipment*
1. General categories	1. Spanking, hitting, slapping with intensity or strong emotional involvement
2. Refusal to comply with requests	2. Stepping on or breaking dolls or furniture
3. Hiding	3. Having dolls trip or fall off or over furniture
4. Running away	4. Having a character die
5. Crying	5. Banging or pushing over doll furniture or walls
V. *Child to child*	6. Having a storm blow down the house or furniture
1. General examples	7. Child assuming the role of a destructive agent
2. Fighting	
3. Hitting	
4. Kicking	
VI. *Subject to dolls or equipment*	
1. General categories	
2. Spanking, hitting, or slapping the dolls	

b boy
g girl
ba baby
X experimenter
q equipment
C the subject
l Any nonhuman or fantastic agent, e.g., witch, fairy, animal

Aggression was further qualified as streotyped or non-stereotyped according to the following definitions:

Stereotyped aggression is any form of aggressive behavior which may actually occur in the common, middle-class home situation. It may include assertive actions or verbalizations which are appropriate to the time, place, character, and capability of the agent of aggression.

Nonstereotyped aggression included any form of aggressive behavior which would not commonly occur in a middle-class home. It was distinguished from stereotyped aggression by its intensity, inappropriateness, or individualistic quality.

Examples of streotyped and nonstereotyped aggression in doll play are given in Table 1.

Tangential aggression included any aggression occurring during tangential behavior or tangential play.

F. *Observer Reliability.* Observer reliability was obtained for four hours and fifty-four minutes of observation, preceding the beginning of the experiment, with another observer (Robinson, 30). The two observers alternated in direct participation with the child, one observer being behind a one-way screen.

Reliability was computed for each category (except direction of aggression) in terms of percentage of agreement between observers, using the formula,

$$\frac{2\ A_{AB}}{O_A + O_B},$$

where A_{AB} = the total number of agreements of observers A and B, O_A = the total number of observations of A, and O_B = the total number of observations of B.

It was thought that a more meaningful index of the reliability of the direction of aggressive behavior would be obtained by the following formula rather than the one above:

$$\frac{2\ A_{AB(i)}}{\Sigma\ A_{AB(i)}},$$

where $A_{AB(i)}$ = the number of agreements of observers A and B on a particular item of aggression, and $\Sigma A_{AB(i)}$ = the total number of agreements of observers A and B on all items of aggression.

The criteria for agreement were:

1. For all categories except aggression and direction of aggression: the same behavior recorded by both observers in the same 15-second interval.

2. For aggression and direction of aggression: the same behavior recorded by

TABLE 2

OBSERVER RELIABILITY

Frequency of Occurrence and Percentage of Agreement for Each Category of Doll Play Behavior
(Four hours and 54 minutes of observation)

Category	Frequency	Percentage of agreement
Average of general categories (R, K, Rx, E, O, T, P)	2366	89.0
Routine thematic play	1307	93.2
Individualized thematic play	281	89.7
Inappropriate action	110	80.0
Exploratory	259	81.8
Organizational	427	87.6
Tangential	52	65.4
Tangential play	33	54.5
Aggression:		
Occurrence	500	78.8
Direction*	394	79.2
Agent	394	87.8
Object	394	82.2
Nonstereotyped	336	83.9

* Percentage of agreement was based upon the total number of agreements between observers on the occurrence of aggression.

both observers within two adjacent 15-second intervals.

The frequency of occurrence of each category of behavior and per cent reliability are presented in Table 2. The average percentage agreement for all categories except aggression was 89. Percentage agreement for individual categories ranged from 51.5 for tangential play to 89.7 for individualized thematic behavior. On occurrence of aggression, observer reliability was 78.8%.

Chapter III

RESULTS

I. *Statistical Procedures*

A. To determine the effects of the frustration experiences on projective play behavior, several kinds of statistical analyses were made:

1. As a measure of the change in behavior between first and second play sessions, analysis was made of the significance of the mean changes in each category of doll play behavior for the control, failure, and satiation groups. The statistical test used is that recommended by Lindquist (22) for the analysis of the significance of the differences in means of related measures.

2. Since it was known from previous studies (2, 27, 28) that children showed significant changes in some aspects of doll play simply as a result of previous experience in the doll play situation, an additional type of analysis was made in order to take this effect into consideration. This analysis consisted of the determination of the statistical significance of the *differences in change* between the control and frustration groups on each category of doll play behavior (22).

3. On the basis of previous findings of sex differences in doll play behavior (29), separate analyses were made of changes for boys and for girls, in addition to those made for the total group.

4. In order to study the total effects of the frustration experience and to increase the number of cases for statistical analysis, scores of the failure and satiation groups were combined, and analyses were made of changes for the combined frustration groups, in addition to the separate analyses for the failure and satiation groups.

5. The effect of the frustration conditions on group variability in play behavior was analyzed by testing the significance of the changes in variance from the first to the second session for control, failure, and satiation groups, using the *F*-test of the significance of the difference in variability of small samples (22).

B. Sex differences in doll play behavior were studied by the following analyses:

1. The doll play behavior of boys and girls was compared by analysis of the difference between the mean scores of boys and girls on each category of doll play behavior, using the critical ratio test.

2. Comparison of sex differences in response to frustration was made by analysis of the differences between boys and girls on the amount of change in behavior following failure and satiation.

C. As a measure of the consistency of doll play behavior from one session to another, Pearson product moment coefficients of correlation were computed between scores on first and second sessions of doll play for the control group, and for the combined failure and satiation groups.

II. *Analysis of the Effects of Frustration on Projective Play*

A. *Previous findings of the effects of frustration on overt behavior.* Previous studies have indicated that frustration may affect overt behavior in a variety of ways.

Dollard, Doob, Miller, Mowrer, and Sears (9) have postulated that the characteristic response to frustration is aggression. Responses other than aggression may occur if the expression of ag-

gression is inhibited by social controls based on anticipation of punishment. It is further hypothesized that aggressive behavior will tend to be directed toward the object or person perceived as the source of frustration. However, if there is strong inhibition of direct expression of aggression toward the frustrating agent, it may be displaced toward another object or person (10).

Barker, Dembo, and Lewin (3) have postulated regression, or a primitivation of behavior, as a consequence of frustration-induced tension. They found that the degree of personal involvement was an important factor in determining the effect of frustration on children's play behavior.

Retrogression—a reactivation of responses which the organism has used adaptively at an earlier period in his life history—has also been suggested as a consequence of frustration. This hypothesis is based upon experimental studies of animal learning, and on clinical observations of neurotic and psychotic patients (41).

Many forms of withdrawal responses have been noted following frustration, including physical attempts to escape from the frustrating situation (7), fantasy (7), and decontextualization (40).

Characteristic effects on activity level and motor behavior have also been observed following frustration. A decreased motility of behavior following failure was found by Sears (40); Fajans (13) found that children who are characteristically rather active can be reduced by failure to passive behavior.

Decreased sensitivity to the realities of the environment with resulting bizarre behavior was noted by Dembo (7) in an early study of frustration.

B. *Present findings on effects of frustration on projective play behavior.* The behavior categories in this study which were considered measures of some of the commonly reported responses to frustration were total amount of aggression, nonstereotyped aggression, tangential aggression, inappropriate thematic behavior, and tangential behavior. Other derived categories also of theoretical importance for the study of frustration were average duration of a thematic sequence and latency of aggression.

The findings with regard to the effects of antecedent failure and satiation on projective play behavior are presented for each of these behavior categories in Tables 3 to 16. Tables 13, 14, and 15 summarize the findings of the present study.

1. *Total aggression.* Aggression was defined as all behavior consistent with the definition of Dollard *et al.,* "an act whose goal response is injury to an organism (or organism-surrogate)" (9). All forms of hostility, physical or verbal, expressed directly by the child or through the medium of the dolls was considered aggressive in nature.

Data on changes in amount of aggressive behavior from first to second sessions for control and frustration groups are found in Table 3.

The total amount of aggressive behavior increased significantly from the first to the second doll-play session for all groups, except for the boys in the control group. Consideration of the total group (both sexes) indicated a greater change between first and second sessions for the frustration groups than for the control group. The change in amount of aggressive behavior for the control group was significant at the 5% level of confidence, while changes for the failure and satiation groups were statistically significant at the 0.1% and 2% levels of confidence respectively.

Comparison of the differences in change between control and frustration groups (Table 14) revealed a slight, though consistent, tendency for the frustration groups to show a greater increase in aggressive behavior, but the only statistically significant difference was for the satiation group of girls (5% level of confidence).

These results on aggressive behavior following frustration, although statistically inconclusive, are in the direction of theoretical expectations. That the amount of aggressive behavior increases significantly from the first to the second session suggests that the child's inhibition to the expression of aggression is gradually weakened in the permissive atmosphere of the doll-play situation. This effect has been noted by clinicians using doll play for therapeutic purposes. Many play therapists (32, 19) consider the weakening of the child's inhibition against the expression of unacceptable impulses a significant aspect of the therapeutic procedure. The catharsis achieved through the expression of aggression, it is assumed, leads not only to a reduction in the aggressive drive, but also to a reduction in the anxiety centering about repressed hostility.

These findings with regard to increased aggression with the passage of time in the doll play situation substantiate the findings of Bach (2), Pintler (28), and Phillips (27).

2. *Aggression during first ten minutes of the session.* Comparison of the amount of aggression during the first ten minutes of the initial play session and the first ten minutes of the second session was made to test the hypothesis that the effects of the frustration might be more pronounced immediately following the frustration experience. Results of this comparison are found in Table 4.

Significant increases in aggression were found for all groups, the significance level being 5% for the control group, 1% for the failure group, and 2% for the satiation group. Separate analysis for boys and girls indicated a significant increase in the amount of aggression for the satiation group of girls (2% level of confidence), and for the failure group of boys (0.1% level of confidence). Comparison of the differences in amount of change between control and frustration groups revealed a consistent trend toward a greater amount of increase for the frustration groups, but none of these differences was statistically significant. (Table 14.)

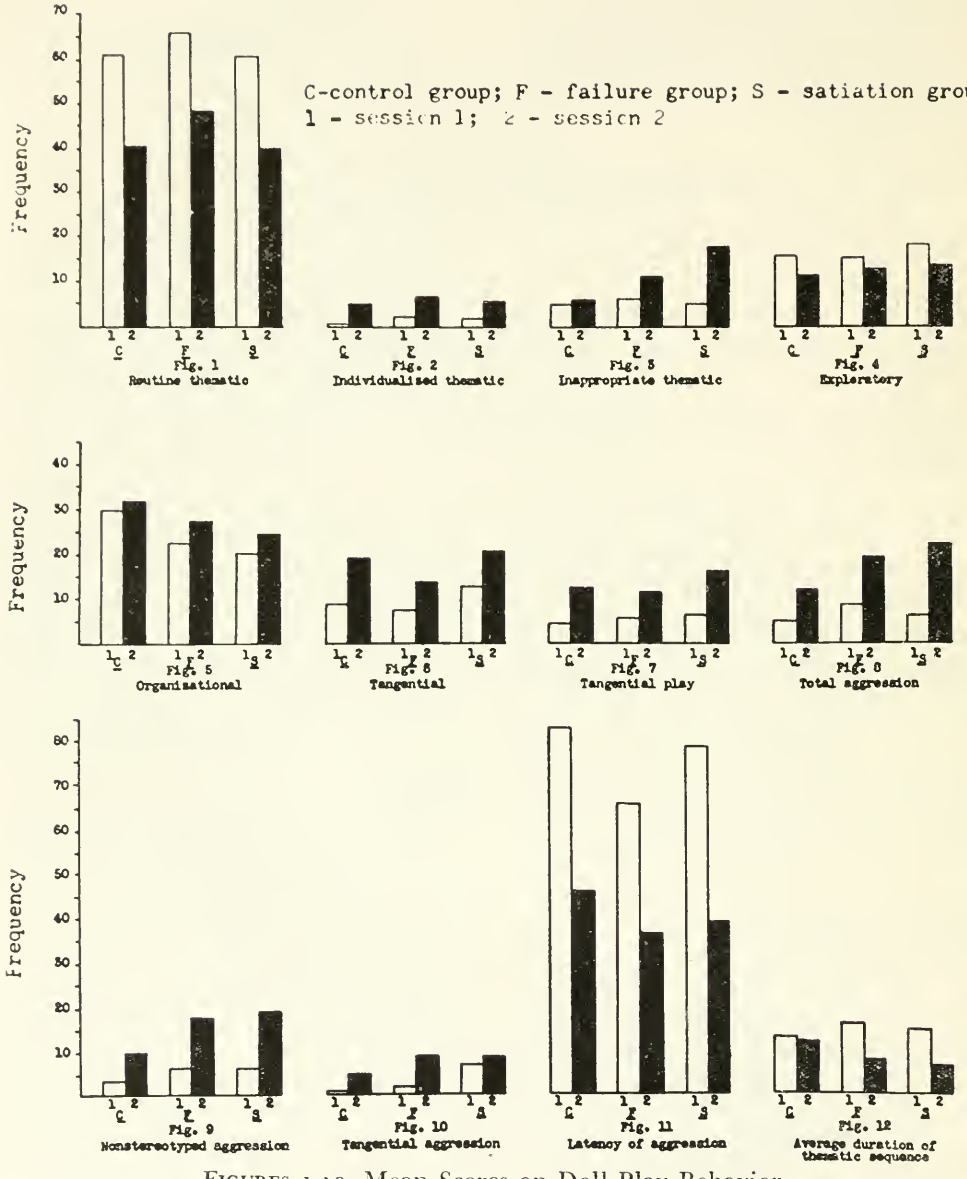
TABLE 3

TOTAL AGGRESSION

Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	3.4	1.32	2.58	10.90	6.19	1.76	7.15	3.16	2.26
Failure	5.0	2.47	2.02	17.30	4.75	3.64	11.15	1.87	5.96
Satiation	9.6	2.60	3.69	21.00	11.03	1.90	15.30	5.66	2.70
Combined F & S	7.3	1.83	3.99	19.15	5.86	3.27	13.23	3.17	4.17

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.



FIGURES 1-12. Mean Scores on Doll Play Behavior.

TABLE 4

AGGRESSION DURING FIRST TEN MINUTES OF SESSION
Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	1.20	0.74	1.62	4.90	2.73	1.79	3.05	1.47	2.06
Failure	0.80	0.78	1.02	8.60	2.61	3.29	4.70	1.61	2.90
Satiation	3.50	1.48	2.36	6.10	3.75	1.63	4.80	2.03	2.35
Combined F & S	2.15	0.89	2.41	7.35	2.51	2.93	4.75	1.99	2.39

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

3. *Nonstereotyped aggression.* This category was used to distinguish between aggressive behavior which commonly occurs and is accepted in our culture, and aggression which is either culturally tabooed or so distorted that it would be likely to occur only on a fantasy level. Nonstereotyped aggression represents a less inhibited form of aggressive behavior than the streotyped variety. Examples of stereotyped and nonstereotyped aggression are given in Table 1.

The total amount of nonstereotyped aggression increased significantly from the first to the second session for all groups, except for the boys in the satiation group (Table 5). Comparison of the difference in change between control and experimental groups revealed a consistent tendency for a greater amount of increase in this type of behavior for all frustration groups, except for the failure group of girls (Table 14).

Although these findings are statistically inconclusive, it might be hypothesized on the basis of the consistent trends that frustration leads not only to instigation to aggression, but results in a disorganization of the person so that he has less effective control over the expression of his impulses, and resorts to more primitive instrumental acts for the satisfaction of his needs. The findings with regard to inappropriate thematic behavior (item 7 below) give further support to this hypothesis.

4. *Tangential aggression.* This category included all direct nonthematic aggression from the child toward the materials, the dolls, or the experimenter. Tangential aggression represented a cruder form of aggressive behavior than aggression embedded in a thematic sequence. Aggression expressed through the medium of the dolls during the course of a theme is more subtle and

TABLE 5

NONSTEREOTYPED AGGRESSION
Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	3.10	1.20	2.58	10.9	5.55	1.96	6.45	2.97	2.17
Failure	3.00	1.02	2.94	19.9	4.95	4.02	11.45	3.13	3.66
Satiation	6.40	2.25	2.84	19.7	10.99	1.79	13.05	5.67	2.30
Combined F & S	4.70	1.62	2.90	19.8	5.87	3.37	12.50	3.17	3.94

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

TABLE 6

TANGENTIAL AGGRESSION

Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	2.00	1.26	1.59	5.60	2.38	2.35	3.80	1.36	2.79
Failure	0.40	0.93	—	11.80	4.28	2.76	6.10	2.47	2.47
Satiation	2.50	1.28	1.95	11.20	4.86	2.30	6.85	2.64	2.59
Combined F & S	1.45	0.88	1.65	11.51	3.16	3.64	6.48	1.79	3.62

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

possibly less anxiety-evoking than direct aggression.

Consistent increases in this type of behavior from the first to the second session were found (Table 6). These increases were significant for control and both frustration groups of boys and only for the satiation group of girls. There were no significant differences in amount of change between control and frustration groups, although there was a consistent tendency for the frustration groups to show a larger increase in this form of aggression (Table 14).

These findings might be interpreted as giving further support to the hypothesis of decreased inhibition as a result of being in the doll play situation.

5. *Latency of aggression.* This measure, the amount of time elapsing from the beginning of the session to the first act of aggression, decreased significantly from the first to the second session for all groups except the control group of girls (Table 7). The girls in the failure and satiation group showed a greater, but not a significantly greater, change than the control girls (Table 14).

These findings substantiate clinical observations that children after an initial experience in the doll play situation warm up more quickly, and give expression to their aggressive feelings earlier in the session.

6. *Direction of aggression.* On the basis of the hypothesis of Dollard, Doob, Miller, Mowrer, and Sears (9) that aggression will tend to be directed toward the object or person perceived as the source of frustration, differential effects

TABLE 7

LATENCY OF AGGRESSION

Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t***	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	−21.30*	12.20	1.75	−51.90	12.40	4.17	−36.60	9.32	3.93
Failure	−30.50	13.42	2.27	−27.60	7.16	5.86	−29.05	7.61	3.82
Satiation	−37.30	13.51	2.76	−41.90	11.57	3.62	−39.60	8.89	4.45
Combined F & S	−33.90	9.55	3.55	−34.75	6.98	4.98	−34.33	5.91	5.81

* Negative values indicate decreases from first to second sessions.

** Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

of failure and satiation were expected with regard to the object of aggression. More outwardly directed aggression, especially toward the experimenter, was hypothesized following satiation; while more self-aggression was expected following failure. In the doll play situation, aggression toward the experimenter might have been expressed in a variety of ways—directly toward his person, or indirectly toward the equipment or toward the male adult doll. Hostile actions toward the child doll of the same sex might be taken as a sign of self-aggression, if we assume that identification occurs.

The mean frequency of aggression toward each doll and toward the equipment, and mean changes in direction of aggression from the first to the second session are found in Table 8. Since the frequencies were small for most categories, statistical test of the significance of the changes was applied only to aggression directed toward the equipment (Table 8).

Aggression toward the equipment consisted chiefly in knocking over the furniture or walls, stepping on them, and throwing the furniture at the walls of the room. Significant increases in the amount of aggressive behavior toward the equipment were found for the boys in the failure and satiation groups, at the 2% and 0.1% levels of confidence respectively (Table 8). This finding supports the expectation of increased outwardly directed aggression following

TABLE 8

DIRECTION OF AGGRESSION

a. Mean Frequency on First and Second Sessions

	Mother		Father		Girl		Boy		Baby		Equipment	
	I	II	I	II	I	II	I	II	I	II	I	II
Girls ($N=30$)	0.53	2.36	1.70	1.96	0.66	1.56	0.63	1.83	1.16	1.73	0.66	1.50
Boys ($N=30$)	1.33	3.70	1.80	5.60	0.96	2.23	0.96	2.03	1.56	2.00	1.83	9.26
Total Group ($N=60$)	0.93	3.03	1.75	3.78	0.81	1.89	0.80	1.93	1.36	1.87	1.25	5.38

b. Mean Changes in Frequency from First to Second Sessions

	Mother	Father	Girl	Boy	Baby	Equipment
	M diff.	M diff.	M diff.	M diff.	M diff.	M diff.
GIRLS						
Control	2.20	−0.10	−0.70	0.20	−0.20	1.30
Failure	0.90	0.70	1.20	2.10	0.30	0.50
Satiation	2.20	0.20	2.20	2.40	1.60	0.70
BOYS						
Control	0.90	3.90	1.60	1.20	0.10	2.90
Failure	2.10	1.50	1.30	1.50	−0.10	11.30
Satiation	0.90	6.10	0.70	0.40	1.60	8.10

c. Significance of Changes in Frequency of Aggression Toward Equipment for Boys

	M diff.	S.E.	t	L.O.C.
Control	2.90	1.46	1.99	10%
Failure	11.30	4.07	2.78	2%
Satiation	8.10	1.98	4.10	0.1%

satiation. Comparison of the amount of increase in equipment-directed aggression between control and frustration groups showed a greater, although not statistically significant, increase for the boys in the failure and satiation groups.

7. *Inappropriate thematic behavior.* Behavior in this category involved distortion of routine themes in the sense of inappropriate use of the materials, or action or verbalization inappropriate to the routine theme being developed.

The mean frequency of inappropriate thematic behavior increased for all groups on the second session of play, although the only statistically significant increase (at 0.1% level of confidence) was for the satiation group (Table 9).

Comparison of differences in amount of change between control and frustration groups (Table 14) showed a significantly greater increase in inappropriate thematic behavior following satiation (1% level of confidence). Separate analysis by sex showed significant differences (2% level of confidence) in changes between the control and satiation groups of boys. Differences between the control and satiation group of girls approached statistical significance.

On the basis of these data it might be hypothesized that the satiation experience resulted in a functional disorganization of which the distorted, unrealistic behavior was symptomatic. It was expected that this effect would be more pronounced following the more ego-involved frustration experience—the failure experience.

8. *Tangential behavior.* Withdrawal behavior or attempts to leave the field are common responses which have been noted following frustration. The category of tangential behavior included all forms of withdrawal — passive daydreaming, active movement away from the doll play materials, or attempts to leave the field by irrelevant verbalization.

TABLE 9

INAPPROPRIATE THEMATIC BEHAVIOR

Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	1.5	3.09	—	2.80	1.97	1.42	2.15	1.79	1.20
Failure	5.0	2.52	1.98	2.60	3.82	—	3.80	2.24	1.70
Satiation	10.6	5.01	2.12	13.30	5.10	2.61	11.95	3.50	3.41
Combined F & S	7.8	2.80	2.79	7.95	3.34	2.38	7.88	2.15	3.67

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

Withdrawal behavior in a frustrating situation usually represents a means of escape from frustrating stimulation. In the doll play situation, withdrawal may have represented an indirect form of aggression toward the experimenter.

Results of the analysis of changes from the first to second session, and differences in changes between control and frustration groups are found in Tables 10 and 14.

Both failure and satiation groups showed statistically significant increases in tangential behavior on the second session of play, whereas no significant change was found for the control group. Separate analysis of changes for boys and girls showed no significant changes for the boys, whereas the girls showed statis-

TABLE 10

TANGENTIAL BEHAVIOR
Mean Changes in Frequency from First to Second Session

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	7.80	5.11	1.53	11.90	9.00	1.32	9.85	5.06	1.95
Failure	8.00	2.92	2.74	4.70	4.66	1.01	6.35	2.46	2.58
Satiation	17.30	6.47	2.67	0.80	5.32	—	9.05	4.50	2.01
Combined F & S	12.65	3.62	3.49	2.75	3.73	—	7.70	3.72	2.07

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence, $t = 2.09$ at 5% level of confidence.

tically significant increases following both failure and satiation. Comparison of control and frustration groups showed no significant differences in change.

9. *Combined frustration responses.* As an additional measure of the effects of frustration, scores on the several categories considered indicative of frustration responses — aggression, inappropriate thematic play, and tangential behavior—were combined. Changes between sessions in this combined frustration measure, and differences between control and experimental groups in amount of change are found in Tables 11 and 14.

Significant increases between first and second sessions were found for all groups, the control group showing differences significant at the 1% level of confidence, while differences for the frustration groups were significant at the 0.1% level of confidence. Comparison of control and frustration groups on mean differences between changes showed a reliably greater increase only for the satiation group of girls (5% level of confidence). All other differences, although insignificant statistically, were in favor of the experimental groups.

10. *Average duration of a thematic sequence.* Barker, Dembo and Lewin (3) found a high relationship between measures of the constructiveness of the play behavior of preschool children and the amount of time spent in the elaboration of a single play unit. An attempt was made to use a similar measure in this study—the average duration of a thematic sequence. This measure was obtained by counting the number of consecutive 15-second intervals of thematic play, uninterrupted by more than one nonthematic interval, and dividing this measure by the number of thematic play units during one thirty-minute session.

TABLE 11

COMBINED SCORES ON AGGRESSION, TANGENTIAL, AND INAPPROPRIATE THEMATIC — MEAN CHANGES IN FREQUENCY FROM FIRST TO SECOND SESSION

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	10.4	4.35	2.39	23.30	9.04	2.58	16.85	5.10	3.30
Failure	17.40	4.15	4.19	18.80	4.73	3.97	18.10	3.07	5.89
Satiation	34.60	8.69	3.98	29.00	9.21	3.15	31.80	6.20	5.13
Combined F & S	26.00	5.09	5.11	23.90	5.17	4.62	24.95	3.58	6.97

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

Symonds (45) in discussing diagnostic signs in doll play suggests, as characteristic of poorly adjusted children, broken and restless play involving rapid shifting of attention, and inability to carry a theme to its conclusion. The average duration of a play sequence might be considered an indrect measure of this type of play.

The average duration of a thematic sequence decreased from the first to the second session for the frustration groups (Table 12). There was a reliable decrease for the failure group of boys (5% level of confidence), and a decrease approaching significance for the failure group of girls (10% level of confidence). The combined failure and satiation group of boys and girls both showed decreases significant at the 5% level of confidence. Changes for the control groups were slight, and insignificant. For the total group of subjects, reliable changes were found for the failure and for the combined frustration groups.

There was a consistent tendency for the frustration groups compared with the control group to show a greater decrease in the average amount of time devoted to the development of a thematic sequence. The only statistically significant difference at the 5% level of confidence was between the control and failure groups of boys.

Increase in the amount of distorted thematic behavior and a decrease in the amount of time spent on a single theme might together be considered symptomatic of regressive behavior, or of the type of disorganized play shown by disturbed children.

TABLE 12

MEAN CHANGES IN DURATION OF THEMATIC SEQUENCE FROM FIRST TO SECOND SESSION

	Girls			Boys			Total Group		
	M	*S.E.*	*t**	*M*	*S.E.*	*t*	*M*	*S.E.*	*t*
Control	− 1.11	6.86	—	−0.40	1.11	—	−0.80	3.38	—
Failure	− 9.50	5.01	1.90	−6.90	3.01	2.29	−8.08	2.89	2.79
Satiation	−14.91	10.82	1.38	−2.80	3.17	—	−8.85	5.68	1.59
Combined F & S	−13.35	5.83	2.29	−4.85	2.23	2.17	−8.48	3.14	2.70

* Levels of significance for "*t*" (d.f. = 19): $t = 2.86$ at 1% level of confidence; $t = 2.09$ at 5% level of confidence.

Additional Measures of Doll Play Behavior

The following categories represent additional measures of behavior—thematic and manipulative—commonly found in doll play. There were no theoretical assumptions with regard to the effect of frustration on these forms of behavior. Data on changes in these categories from the first to the second play sessions, and comparison of the significance of differences between changes for control and experimental groups are found in Tables 13 and 15.

11. *Routine thematic behavior.* This type of play consisted largely of the reproduction of common daily routines in the home. It represented, on the whole, play fantasy at a low level of creativity.

Routine thematic behavior was found to be the most frequent form of doll play behavior. The total amount of this behavior decreased significantly for all

TABLE 13

SUMMARY OF TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS ON FIRST AND SECOND SESSIONS

	Girls				Boys				Total Group			
	C	F	S	F & S	C	F	S	F & S	C	F	S	F & S
Total aggression (+)*	2%	5%	0.1%	0.1%	10%	0.1%	5%	0.1%	5%	0.1%	2%	0.1%
Nonstereotyped aggression (+)	1%	1%	1%	1%	5%	0.1%	10%	0.1%	5%	0.1%	2%	0.1%
Tangential aggression (+)	N.S.	N.S.	5%	5%	5%	1%	5%	0.1%	1%	2%	1%	0.1%
Aggression (first 10 min.)(+)	10%	N.S.	2%	2%	10%	0.1%	10%	1%	5%	1%	2%	2%
Latency of aggression (−)	N.S.	5%	2%	1%	1%	1%	1%	0.1%	1%	1%	0.1%	0.1%
Inappropriate thematic (+)	N.S.	5%	5%	1%	N.S.	N.S.	2%	5%	N.S.	N.S.	0.1%	0.1%
Tangential (+)	N.S.	1%	2%	0.1%	N.S.	N.S.	N.S.	N.S.	10%	2%	5%	1%
Average duration of thematic sequence (−)	N.S.	10%	N.S.	5%	N.S.	5%	N.S.	5%	N.S.	1%	N.S.	2%
Routine thematic (−)	0.1%	5%	0.1%	0.1%	0.1%	5%	5%	1%	0.1%	5%	0.1%	0.1%
Individualized thematic (+)	N.S.	N.S.	5%	5%	N.S.	N.S.	10%	N.S.	10%	N.S.	5%	10%
Exploratory (−)	N.S.	N.S.	N.S.	N.S.	2%	N.S.	N.S.	10%	10%	N.S.	N.S.	N.S.
Organizational (+)	5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Tangential play (+)	10%	1%	N.S.	10%	0.1%	0.1%	10%	0.1%	0.1%	0.1%	10%	0.1%
Combined aggression, tangential, inappropriate thematic (+)	5%	0.1%	0.1%	0.1%	5%	0.1%	1%	0.1%	1%	0.1%	0.1%	0.1%
Equipment-directed aggression (+)	N.S.	N.S.	N.S.	N.S.	N.S.	2%	0.1%	1%				

* (+) indicates increased frequency on the second session; (−) indicates decreased frequency.

TABLE 14

SUMMARY OF TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN CHANGES OF CONTROL AND EXPERIMENTAL GROUPS

	Total Aggression	Non-stereotyped Aggression	Tangential Aggression	Aggression (First ten minutes)	Latency of Aggression	Inappropriate thematic	Tangential	Average duration of thematic sequence
GIRLS								
Control-failure	N.S.*	N.S.	N.S.	N.S.	N.S.*	N.S.*	N.S.*	N.S.*
Control-satiation	5%*	N.S.*	N.S.*	10%*	N.S.*	N.S.*	N.S.*	N.S.*
Control-combined F & S	10%*	N.S.*	N.S.*	N.S.*	N.S.*	N.S.*	N.S.*	N.S.*
BOYS								
Control-failure	N.S.*	N.S.*	N.S.*	N.S.*	N.S.	N.S.	N.S.	5%*
Control-satiation	N.S.*	N.S.*	N.S.*	N.S.*	N.S.	1%*	N.S.	N.S.*
Control-combined F & S	N.S.*	N.S.*	10%*	N.S.*	N.S.	N.S.*	N.S.	N.S.*
TOTAL GROUP								
Control-failure	N.S.*	N.S.*	N.S.*	N.S.*	N.S.	N.S.*	N.S.	10%*
Control-satiation	N.S.*	N.S.*	N.S.*	N.S.*	N.S.*	2%*	N.S.	N.S.*
Control-combined F & S	N.S.*	10%*	N.S.*	N.S.*	N.S.*	5%*	N.S.	10%*

* Differences in favor of experimental groups.

groups on the second session. Comparison of the changes from the first to the second session is found in Table 13. There were no significant differences in amount of change between control and experimental groups.

It was not expected that the amount of this type of play would be significantly affected by frustration. However, these data do not indicate whether or not there were any qualitative changes, i.e., changes in thematic content, following the frustration experience.

12. *Individualized thematic behavior.*

TABLE 15

SUMMARY OF TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN CHANGES OF CONTROL AND EXPERIMENTAL GROUPS

	Routine thematic	Individual thematic	Exploratory	Organizational	Tangential Play
GIRLS					
Control-failure	N.S.	N.S.	N.S.*	N.S.	N.S.
Control-satiation	N.S.	N.S.	N.S.	N.S.	N.S.
Control-combined F & S	N.S.	N.S.	N.S.	N.S.	N.S.
BOYS					
Control-failure	N.S.*	N.S.*	N.S.	N.S.*	N.S.
Control-satiation	N.S.*	N.S.	N.S.	N.S.*	N.S.
Control-combined F & S	N.S.*	N.S.*	N.S.	N.S.*	N.S.
TOTAL GROUP					
Control-failure	N.S.	N.S.	N.S.	N.S.*	N.S.
Control-satiation	N.S.*	N.S.	N.S.	N.S.*	N.S.
Control-combined F & S	N.S.	N.S.	N.S.	N.S.*	N.S.

* Difference in favor of the experimental groups.

This category included original creative fantasy as distinguished from the popular routine thematic play. This form of thematic play is considered by clinicians as diagnostically significant in revealing the child's individualized perception of his world, and his symbolization of his feelings and anxieties.

The total amount of individualized thematic play was small relative to the amount of routine thematic play. All groups showed a greater amount of individualized thematic play during the second session than during the first session. The total group of satiation subjects (boys and girls) increased significantly in this type of play on the second session (5% level of confidence), but the increases for the control and failure groups were not reliable (Table 13).

Analysis of differences in amount of change between control and experimental groups shows no consistent tendencies in favor of either group (Table 15). These results suggest that the amount of children's individualized thematic play is not appreciably influenced by antecedent frustration.

13. *Exploratory behavior.* Exploratory play included all orienting behavior toward the materials. It consisted of thematic or nonthematic manipulation, or visual survey of the dolls or furniture presumably for the purpose of becoming familiar with the materials.

The amount of exploratory behavior decreased for all groups on the second play session. This decrease was significant, at the 2% level of confidence, only for the control group of boys (Table 13). Comparison of the control and frustration groups showed no significant differences in mean change from first to second session, but there was a consistent tendency for the control group to show a greater amount of decrease in this type of behavior than the experimental groups (Table 15).

14. *Organizational behavior.* Organizational behavior involved the arrangement of materials in patterns other than those set up by the experimenter. It included both constructive organization of the materials and random manipulation at a relatively low level of creativity.

The total amount of organizational behavior increased from the first to the second session for all but the control group of boys. None of these increases was statistically significant (Table 13). Comparison of mean differences in change between control and frustration groups showed no significant differences (Table 15).

15. *Tangential play.* This category included all nonthematic play using the materials. Tangential play represented a partial withdrawal from the play situation, but was not so complete a "leaving of the field" as tangential behavior.

An increase in the amount of tangential play behavior from the first to the second session was found for all groups. This increase was significant for the failure group of boys at the 0.1% level of confidence; for the failure group of girls, at the 1% level of confidence; for the control group of boys, at the 0.1% level of confidence. There were no significant changes for the satiation group of either sex or for the control group of girls (Table 13). Comparison of the mean differences between control and frustration groups revealed a slight tendency for a greater increase in tangential play for the control group (Table 15).

Table 13 summarizes the findings on the statistical significance of changes in behavior between first and second ses-

sions for control, failure and satiation groups. Bar graphs of the mean scores on each category for first and second sessions are found on page 16.

C. *Changes in variability.* The variability in each category of doll play behavior on the first and second sessions was compared by means of the *F*-test of the significance of a difference in variability for small samples (22). A summary of the statistical significance of the changes in variability is found in Table 16.

For the total group of control subjects there were reliable increases in variability on individualized thematic behavior, tangential behavior, and nonstereotyped aggression. The total group of failure subjects showed significantly greater variability on individualized thematic play, nonstereotyped aggression, and tangential aggression. The total group of satiation subjects increased significantly in variability on inappropriate thematic play, total amount of aggression, nonstereotyped aggression, and tangential aggression.

TABLE 16

SUMMARY OF TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN VARIANCES ON FIRST AND SECOND SESSIONS

	Girls			Boys			Total Group		
	C	F	S	C	F	S	C	F	S
Total aggression	N.S.	N.S.	N.S.	N.S.	N.S.	5%	N.S.	N.S.	5%
Nonstereotyped aggression	N.S.	N.S.	N.S.	1%	N.S.	5%	5%	5%	1%
Tangential aggression	N.S.	N.S.	1%	1%	5%	5%	N.S.	5%	5%
Inappropriate thematic	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	5%
Tangential	5%	N.S.	5%	5%	N.S.	N.S.	5%	N.S.	N.S.
Routine thematic	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Individualized thematic	N.S.	N.S.	N.S.	1%	5%	N.S.	1%	5%	N.S.
Exploratory	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Organizational	5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Tangential play	5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

III. *Consistency of Doll Play Behavior.* Doll play has been used as a modified informal interview technique; consequently the reliability of the technique has not been given serious consideration. Reliability as an attribute of a test implies that it is consistent in measuring the same behavior. In the use of any clinical test for diagnostic purposes, such an assumption is basic. By means of correlation analysis, measures were obtained of the reliability of the doll play technique used in this study.

As indices of the consistency of play behavior between two sessions of doll play, Pearson product-moment coefficients of correlation were computed between scores on each of the categories of behavior for the first and second play sessions. Table 17 gives the reliability coefficients for the control group of twenty cases and for the combined failure and satiation groups of forty cases. The control group of subjects showed the highest degree of session to session consistency on routine thematic behavior, the r being .86. On inappropriate aggression, they showed the least consistency, the coefficient of correlation being .23.

For the combined failure and satiation groups, correlations based on forty cases ranged from .77 for total amount of ag-

TABLE 17

RELIABILITY COEFFICIENTS BETWEEN FIRST AND SECOND SESSIONS

Category	Control Group* ($N=20$)	Combined F & S** ($N=40$)
Total aggression	.28	.77
Nonstereotyped aggression	.23	.38
Latency of aggression	.54	.54
Inappropriate thematic	.49	.45
Individualized thematic	—	.43
Routine thematic	.86	.68
Average duration of thematic sequence	.83	.12
Exploratory	.40	.16
Organizational	.26	.53
Tangential	.51	.47
Tangential play	.73	.60

* For 20 cases, r of .561 significant at the 1% level of confidence.

** For 40 cases, r of .403 significant at the 1% level of confidence. (22)

gressive behavior to .16 for exploratory behavior.

Since the tendency to give free expression of aggression or to be inhibited in the expression of aggression is often considered a rather stable individual personality characteristic, a high degree of reliability on aggressive behavior might be expected. The correlation of .77 on aggression for the combined failure and satiation groups tends to confirm this expectation, whereas the low correlation of .28 for the control group would tend to refute it. However, inspection of the scattergram for the control group indicates that children who made initially high scores on aggression during the first session tended to remain high on aggressive behavior on the second session; while those children low on aggression during the first session varied considerably in relative position on aggression during the second session. A systematic hypothesis to account for these results might be suggested. It might be hypothesized that those children initially low on aggression who showed a marked increase on the second session might have had a strong aggressive drive, the expression of which was inhibited initially. This inhibition might have been weakened in the permissive atmosphere of the doll play situation, so that they were able to give freer expression to the aggressive drive on the second session. A low aggressive drive or very strong inhibition might be postulated for these children who remained consistently low on aggression during both sessions.

On the whole, these results suggest that some aspects of doll play behavior show a moderate degree of consistency from one session to another, while other aspects of behavior are so low in reliability as to make prediction of behavior highly inaccurate.

IV. Sex *Differences.* Previous studies have found characteristic differences between preschool boys and girls in doll play behavior. Bach (2) found that boys showed a significantly greater amount of aggressive behavior, and more nonstereotyped thematic play, while girls showed a greater amount of stereotyped (routine) thematic play. Pintler, Phillips, and Sears (29), comparing the doll play behavior of a group of eighty preschool boys and girls, found that girls indulged in a reliably greater amount of thematic play; while boys exhibited a significantly greater amount of nonhuman thematic play, more nontangential aggression, and a greater number of theme changes. They also found a greater intragroup variability in frequency of the various categories for boys than for girls. These differences were interpreted partly in terms of generalization of learned responses to doll play materials, and partly in terms of cultural sex typing.

Analysis of the differences in doll play behavior of the total group of boys and

TABLE 18

COMPARISON OF DOLL PLAY BEHAVIOR OF BOYS AND GIRLS ($N=60$)

Category	Session 1			Session 2		
	M diff.	C.R.	L.O.C.	M. diff.	C.R.	L.O.C.
1. Routine thematic	40.17	5.96	0.1%	32.07	3.17	0.1%
2. Individualized thematic	− 0.23*	—	N.S.	− 4.73	1.28	20%
3. Inappropriate thematic	− 1.37	—	N.S.	− 2.83	—	N.S.
4. Exploratory	− 7.80	2.46	2%	0.76	—	N.S.
5. Organizational	−19.83	3.96	0.1%	−12.64	2.02	5%
6. Tangential	− 9.30	3.52	0.1%	3.53	—	N.S.
7. Tangential play	− 3.00	1.43	20%	−11.43	3.97	0.1%
8. Total aggression	− 2.76	1.16	30%	−15.13	2.61	0.1%
9. Nonstereotyped aggression	− 1.53	—	N.S.	−14.57	2.58	1%
10. Tangential aggression	− .80	—	N.S.	− 8.70	3.55	0.1%
11. Latency of aggression	2.7	2.12	5%	13.50	1.33	20%
12. Average duration of theme	11.26	2.61	1%	6.17	1.71	10%

* Negative values indicate differences in favor of boys.

girls on the first and second sessions in the present study are found in Table 18.

On both first and second play sessions, girls showed a greater amount of routine thematic play (statistically significant at the 0.1% level of confidence). Girls also exceeded the boys in the average amount of time spent on a unit of thematic play, this difference being significant at the 1% level of confidence.

There were reliable differences between the sexes on aggressive behavior. Boys showed a significantly greater amount of total aggression, as well as nonstereotyped and tangential aggression during the second play session. Although there was a tendency for the boys to exceed the girls on these types of behavior during the first session, no reliable differences were found. Boys tended to release their aggression earlier in the session, as evidenced by the significantly greater latency of aggression for the girls on the first session.

Boys also showed a reliably greater amount of exploratory, organizational, and tangential behavior on the first play session. Of these categories, on the second session, the boys exceeded the girls reliably only in organizational behavior.

A comparison of findings on sex differences is presented below. Levels of significance are in parentheses.

On the whole these findings are consistent in indicating that boys exhibit more aggressive behavior, and a less inhibited form of aggression than the girls; while the girls show a greater amount of thematic play of a reproductive nature.

In addition, the findings of the present

Category	*Bach (2)*	*Pintler et al. (29)*	*Present study*
Total aggression	Boys (0.1%)	Boys (2%)	Boys (0.1%)
Nonstereotyped aggression	Boys (0.1%)	—	Boys (1%)
Tangential aggression	—	Boys (N.S.)	Boys (0.1%)
Inappropriate thematic	Boys (0.1%)	Boys (N.S.)	Boys (N.S.)
Tangential	—	Boys (N.S.)	Boys (0.1%)
Routine thematic	Girls (0.1%)	Girls (0.1%)	Girls (0.1%)
Organizational	—	Boys (N.S.)	Boys (0.1%)
Exploratory	—	Girls (N.S.)	Boys (2%)
Tangential play	—	Girls (N.S.)	Boys (0.1%)

study suggest that boys indulge in a greater amount of manipulative behavior, and show less sustained play sequences than do the girls.

The findings of previous investigations (46) that boys show a greater amount of aggressive behavior and more manipulative play in the nursery school indicate that sex differences found in doll play reflect differences in everyday social behavior.

An interpretation of sex differences in doll play behavior can be made in terms of social learning theory (24). That aggressive and other socially nonconforming behavior on the part of girls is subjected to greater social disapproval than similar behavior on the part of boys is generally recognized. We might therefore expect a weaker tendency toward such behavior, or the development of stronger inhibitory tendencies in girls, as a result of social disapproval. However, more precise analysis needs to be made of the means—the agents and techniques—by which such sex-typed behavior is reinforced.

Comparison of sex differences in response to frustration was made by analysis of the differences between boys and girls in amount of change in behavior following failure and satiation. This analysis is presented in Table 19.

Boys exceeded girls reliably in increase in amount of nonstereotyped aggression following failure, and in amount of tangential aggression following both failure and satiation. There was a tendency for the boys to show a greater amount of total aggression following failure and satiation, but this difference was not statistically significant. Girls showed a tendency toward a greater amount of tangential behavior following satiation than did the boys. There is also an unreliable tendency for the girls to show a greater decrease in the average duration of a thematic sequence following satiation. Previous analysis showed a significant increase in tangential behavior following both failure and satiation for the girls; while the increase for the boys was negligible.

These findings suggest that boys tend to use a more active approach to reduce frustration tension, while girls show a tendency to engage in withdrawal behavior. As was noted previously, withdrawal behavior in doll play might have represented a passive form of aggression toward the experimenter.

Studies on the effect of frustration on overt behavior have enumerated a large variety of potential responses to frustration. Few studies throw light on the factors determining which of the characteristic responses will be shown. The present findings on sex differences in response to frustration indicate the importance of previously learned response patterns, established by cultural rewards and punishments, in determining which of the potential gamut of responses will be elicited by frustration stimulation.

V. *Summary of Findings.* Tables 13, 14, 15 summarize the findings on changes between first and second sessions and differences in change between control and frustration groups.

1. *Changes in doll play behavior between first and second sessions for the control group.*

The control group showed significant increases between the first and second sessions in the following categories of behavior: total aggression (5% level of confidence), non-stereotyped aggression (5% level of confidence), tangential aggres-

TABLE 19

SEX DIFFERENCES FOLLOWING FRUSTRATION

Category	M diff.	S.E. diff.	L.O.C.
1. Total aggression			
Failure	−12.30*	6.32	10%
Satiation	−11.40	10.74	N.S.
2. Nonstereotyped aggression			
Failure	−16.90	4.78	0.1%
Satiation	−13.30	10.65	N.S.
3. Tangential aggression			
Failure	−11.40	4.15	2%
Satiation	− 8.70	1.89	0.1%
4. Latency of aggression			
Failure	2.90	15.19	N.S.
Satiation	− 4.60	17.78	N.S.
5. Inappropriate thematic			
Failure	2.40	4.34	N.S.
Satiation	− 2.70	6.78	N.S.
6. Tangential			
Failure	3.30	5.22	N.S.
Satiation	16.50	7.95	10%
7. Average duration of thematic sequence			
Failure	4.40	5.65	N.S.
Satiation	12.60	10.68	N.S.
8. Routine thematic			
Failure	− 1.70	11.32	N.S.
Satiation	12.00	9.73	N.S.
9. Individualized thematic			
Failure	− 7.00	6.67	N.S.
Satiation	− 5.60	2.94	N.S.
10. Exploratory			
Failure	− 1.50	5.13	N.S.
Satiation	−10.60	7.30	N.S.
11. Organizational			
Failure	7.40	8.52	N.S.
Satiation	0.50	10.27	N.S.
12. Tangential play			
Failure	− 5.90	2.87	10%
Satiation	− 6.70	5.80	N.S.

* Negative values indicate differences in favor of the boys.

sion (1% level of confidence), aggression during the first ten minutes of play (5% level of confidence), tangential play (0.1% level of confidence). Significant decreases were found in latency of aggression (1% level of confidence) and in routine thematic behavior (5% level of confidence).

2. *Changes in doll play behavior between first and second sessions for the failure group.*

The failure group showed significant increases between the first and the second session of doll play in the following categories of behavior: total aggression (0.1% level of confidence), nonstereotyped aggression (0.1% level of confidence), tangential aggression (2% level of confidence), aggression during the first ten minutes of the session (1% level of confidence), tangential behavior (2% level of confidence) tangential play 0.1% level of confidence. Significant decreases were found on the following categories: latency of aggression (1% level of confidence), average duration of a thematic sequence (1% level of confidence), routine thematic behavior (5% level of confidence).

3. *Changes in doll play behavior between first and second sessions for the satiation group.*

The satiation group showed significant increases on the second session of doll play in the following categories of behavior: total aggression (2% level of confidence), nonstereotyped aggression (2% level of confidence), tangential aggression (1% level of confidence), aggression during the first ten minutes (2% level of confidence), inappropriate thematic behavior (0.1% level of confidence), tangential behavior (5% level of confidence), individualized thematic (5% level of confidence). The satiation group showed significant decreases in latency of aggression (0.1% level of confidence), and routine thematic behavior (0.1% level of confidence).

4. *Differences in changes between control and experimental groups.*

Tables 14 and 15 summarize the analysis of differences in changes between control and experimental groups for each category of doll play behavior. The starred categories indicate differences in favor of the experimental groups.

Of 16 comparisons of differences in changes between control and failure groups and control and satiation groups, thirteen were in favor of the frustration groups in the direction of theoretical expectations. The only statistically significant difference (at the 2% level of confidence) was between the control and satiation groups on inappropriate thematic behavior. The satiation group showed a significantly greater increase than the control group on inappropriate thematic behavior on the second session of play.

5. *Sex differences.* Table 18 and 19 summarize findings on sex differences.

On the first session of play, boys showed significantly more exploratory (2% level of confidence), organizational (0.1% level of confidence), and tangential behavior (0.1% level of confidence). Girls on the first session of play showed a significantly greater amount of routine thematic play (0.1% level of confidence), a greater latency of aggression (5% level of confidence), and a greater average duration of thematic sequence (1% level of confidence).

On the second doll play session, boys showed a significantly greater amount of total aggression, nonstereotyped aggression, tangential aggression, tangential play, and organizational behavior. Girls showed a significantly greater amount of routine thematic play (0.1% level of confidence).

Chapter IV

DISCUSSION

A. *Theoretical implications.* The lack of consistent differences in behavior following frustration, together with the large variability of the scores, tends to support previous observations that *any one of a variety of responses is likely to occur as a result of frustration.* On the whole, individual differences were so great as to obscure the statistical significance of any single common type of reresponse.

The findings with regard to aggressive behavior following frustration are in the direction of substantiating the frustration-aggression hypothesis (9), but emphasize that aggression is only one of many possible responses. The results showing a reliable increase in distorted thematic play, and a decreased duration of play units, suggest that regressive behavior is also a likely consequence of frustration. That withdrawal behavior is another frequent frustration response is also borne out by these findings. The effects of antecedent frustration on motility are not clearly shown, since the categories on manipulative behavior did not clearly distinguish levels of activity.

The transfer of the effects of frustration to a subsequent non-frustrating situation raises an interesting theoretical problem. The characteristic responses made in a frustrating situation might be considered adaptive attempts to reduce frustration-induced tension—by aggression, by persistent non-adjustive behavior, by withdrawal, by fantasy substitution. However, in the doll play situation these responses no longer served a similar function. Their occurrence in this situation might be interpreted either in terms of a generalization from the previous situation, the experimenter being the identical element in both situations, or in terms of the persistence of frustration-induced tensions. It might be hypothesized that frustration results in a change in the state of the person, or that it leads to instigations which persist beyond the frustrating situation. The latter hypothesis would seem to have broader implications for dealing with the after-effects on behavior of any strong stimulation.

Numerous clinicians (4, 19, 32) have pointed out the breakdown of socialized inhibitions in the permissive atmosphere of the doll play room. The findings of this study show clearly the weakening of inhibitory controls with respect to aggression after previous experience in the doll play situation. Statistically significant changes from the first to the second doll play session were found for the control group in the following categories: increased aggressive behavior, increased non-stereotyped aggression, increased tangential aggression, decreased latency of aggression, and decreased routine thematic play. A possible theoretical explanation of these changes in terms of learning-theory readily suggests itself. In the everyday social situation children's aggressive behavior leads to punishment. In this way, inhibition to the expression of aggression is developed (9). In the doll-play situation, behavior which is ordinarily inhibited by social controls is permitted, thus leading to a weakening of inhibitions based on anticipation of punishment.

Comparison of behavior following failure and satiation indicate few differential effects of these conditions, contrary to theoretical expectations. Since the fail-

ure situation depended for its effects on the ego-involvement of the child, while the satiation situation was essentially one of mild punishment and restraint, it was expected that failure would result in more ego-defensive behavior, while satiation would lead to a more direct attack on the environment. Differential effects of failure and satiation were found with respect to two categories: average duration of a thematic sequence, and inappropriate thematic behavior.

A significant decrease in the average duration of a thematic sequence was found following failure, whereas no such decrease was found after satiation. The average duration of a thematic sequence was the average number of consecutive 15-second intervals of thematic play during a 30-minute session. A high score on this category would be indicative of a smooth continuity in dramatic play; whereas a low score would be indicative of a jerky play broken by frequent nonthematic sequences. Such disruptive play may be symptomatic of ego-disorganization, since in the clinical literature it is found to be characteristic of poorly adjusted children. This finding would be in support of our theoretical expectations.

The group subjected to the satiation experience showed a significant increase in inappropriate thematic behavior, whereas the failure subjects showed only a negligible change. Inappropriate thematic play involved distortion of routine themes and inappropriate use of the materials.

With regard to the incidence of aggressive behavior, no differential effects of failure and satiation were found. Analysis in terms of objects of aggression indicated a more highly significant increase in the incidence of equipment-directed aggression on the part of the boys in the satiation group. This finding tends to support the expectation of greater outwardly directed aggression following a frustration whose source was clearly defined than following failure where the self is the agent of frustration.

B. *Clinical implications.* The categories measuring behavior considered to be of clinical significance were aggression, inappropriate thematic behavior, average duration of a thematic sequence, and individualized thematic behavior. It was found that some of these behavior categories were affected by antecedent frustration, while other categories of equal diagnostic importance were unaffected. There were indications that the antecedent experiences affected the total amount of aggression, the form of aggression, the amount of distorted, unrealistic play (inappropriate thematic play) and the average duration of a play unit. (Few of these differences were statistically significant, but they were consistently in favor of the experimental groups.) The categories unaffected by the antecedent experiences were individualized thematic behavior, exploratory, and organizational behavior.

The clinical significance of sheer amount of aggression is unclear. The amount of aggressive behavior shown by a child in doll play may be a direct function of the amount of repressed hostility. If so, a large amount of aggression would be characteristic of the child who has been strongly frustrated in his social learning experiences. On the other hand, such behavior may also be characteristic of the child who is free and spontaneous in the expression of his impulses, a healthy symptom within limits. It would seem, therefore, that amount of aggression in itself might not be so important a diagnostic sign as the qualitative as-

pects of the aggressive fantasies and the individuals toward whom they are directed.

The incidence of inappropriate or distorted thematic behavior may be highly significant clinically since such behavior may be considered regressive in that it represents a relatively crude form of behavior, a response pattern indicative of unrealistic contact with the environment. The bizarre behavior of psychotics represents similar inffective contact with reality.

The amount of time spent on a single play unit was found to be highly related to the general level of constructiveness of children's play by Barker, Dembo, and Lewin (3). A short average duration of a thematic sequence would be indicative of a rapid shifting from one play unit to another, resulting in a jerky, uncoordinated type of play. Clinicians have found such play to be more characteristic of poorly adjusted than of well-adjusted children (45). A decrease in the average duration of a thematic sequence might also be considered a regressive symptom in that it represents a decreased attention span.

Individualized thematic behavior may be considered a measure of the child's unique personalized fantasies. That there were not significant changes in this category suggests that mild antecedent frustrations do not affect the incidence of this type of behavior. The effect on the qualitative aspects of individualized fantasy was not determined.

Manipulative behavior as measured by the categories of organizational and exploratory behavior was not significantly affected by frustration. Many clinicians consider the child's expressive manipulation in play indicative of his characteristic modes of response to people and objects in his environment, while the content of his fantasy is used as an index of his feelings, preoccupations, and anxieties. The amount of exploratory and organizational behavior may distinguish the passive child from the child who actively and eagerly manipulates his environment. If these categories of organizational behavior and exploratory behavior can be considered valid indices of creative initiative as opposed to passive conformity to adult-imposed patterns (18), these results would indicate that such basic structural characteristics of the personality are not affected by mild antecedent frustration. It might be expected that some aspects of play content would more likely be influenced by superficial antecedent experiences than expressive behavior indicative of the basic organization of the personality. An analysis of the data to test such an hypothesis was not possible because the content of the fantasy was not recorded in this study.

The findings that some clinically significant forms of behavior were affected by immediately antecedent experiences has obvious implications for the clinician. It would suggest caution in interpretations based on a single session of play when the clinician has no knowledge of the child's immediately preceding experiences. Sampling of the play behavior of a child over a period of time would tend to reduce the danger of errors in interpretation due to the influence of antecedent experiences.

C. *Reliability of doll play.* The results on the consistency of doll play behavior suggest that the play technique used in this study cannot be considered highly reliable according to the usual standards of test reliability. However, the significance of these correlations, based on a

small number of cases, can be questioned.

A high degree of session-to-session consistency was found for two categories of doll play behavior: routine thematic behavior and tangential play. These findings indicate that children tend to be consistent in the amount of thematic play reproductive of everyday home situations and in the amount of non-thematic manipulation of the materials. In measures of these two types of behavior this play technique can be considered reliable. On the other hand, there was low session-to-session reliability on inappropriate thematic play which was considered a clinically significant category. It was expected that the children would show a high degree of consistency on aggressive behavior, since aggression is often considered a significant differentiating personality characteristic. The findings did not bear out this expectation clearly. A high reliability coefficient was found for the combined frustration groups; while the correlation coefficient on aggression for the control group was low. Closer analysis of the data for the control group indicated that the children who were high on aggression on the first session tended to be high on the second session; those showing little initial aggression were unpredictable, i.e., some were high on the second session, while others remained low. An interpretation of this finding was suggested in terms of the relative strengths of the instigatory and inhibitory tendencies to aggression.

The lack of reliability of the doll play categories might raise doubts as to the clinical value of the doll play technique. Interpretation in the clinical situation, however, is rarely based on a single isolated item of play, but is derived from the total play picture. Therefore, the reliability of single items of behavior in doll play is not an adequate measure of the reliability of clinical interpretation. It is likely that the reliability of the total clinical impression gleaned from the child's projective play would be greater than the reliability of any single category of play behavior.

Several characteristics inherent in the doll play technique make it questionable as to whether the usual standards of test reliability can meaningfully be applied to this technique. The fact that doll play has therapeutic effects, i.e., results in a change in the motivating conditions of the child, complicates the problem of reliability. If such changes in motivation occur, progressive changes in doll play behavior might be expected, the deeper the therapeutic effect, the greater the changes in behavior. Interpretation of the reliability of projective tests is further complicated by the nature of the projective stimulus. The range of possible responses elicited by a projective stimulus is much greater than that elicited by a standard test stimulus. In the construction of tests of abilities, aptitudes, or paper and pencil personality tests, the attempt is made to define the test stimulus in such a manner as to reduce the possible range of responses. In the development of projective tests, the aim is to develop ambiguous stimuli and create situations which will call forth a wide range of responses. This characteristic of projective tests would tend to make them less reliable than ordinary tests. With regard to doll play techniques, although the materials are unambiguous, the freedom of the situation presumably has a similar effect as unstructured stimuli.

D. *Sex differences.* The findings on sex differences indicate that boys show a more active and aggressive approach to

the materials, while girls show more passive, inhibited, and socially conforming behavior. These results are in support of Swift's data on sex differences in Rorschach responses (43), and the findings of Bach (2), and Pintler, Phillips and Sears (29) on doll play behavior. Similar sex differences among preschool children in everyday social situations have been reported by other investigators (45).

Comparison of the doll play of boys and girls following frustration showed similar sex differences. Girls tended to show a greater increase in withdrawal behavior following frustration, while boys tended to show a greater increase in aggressive attack.

Such differences between the sexes in doll play behavior as found in these studies need to be clearly recognized by the clinician in evaluating children's doll play behavior. Normative data on sex differences in play might be clinically useful in indicating the extent to which a child has internalized the sex-typed behavior standards in the culture.

These results indicate that even in a situation where the usual social controls are considerably relaxed, sex differences in social behavior which are characteristic of adults in our culture are found among children of the preschool ages. It can logically be assumed that the biological and social factors determining sex-typed behavior are operative at these early age levels. Determination of the relative importance of biological and social factors is exceedingly difficult. Studies of children's doll play in other cultures where training in sex roles is not begun as early as in our culture might throw some light on this question.

The dynamic factors underlying the acquisition of sex-appropriate behavior have not been adequately explored. Superficial observation indicates that socially conforming behavior, especially with respect to control of aggression, is more strongly reinforced for girls than for boys in our culture. Further research is needed to delineate more clearly the sex-typing pressures on children in our culture—the agents of reinforcement, the social techniques, the role of identification. Also in need of further study is the development of children's perceptions of sex-based differential expectations in social behavior. The doll play technique seems to be well-adapted for studying children's awareness of differences in behavior-expectations for boys and for girls.

E. *Implications for projective techniques.* Previous studies of the effects of experimentally induced states and of situational influences on projective behavior have found interesting effects on perceptual responses (20, 26, 31, 35). The behavior studied in this investigation was more complex than a simple perceptual response, and the drive state less clearly defined than in the Murray (26) or Sanford (35) studies. Although the results of this study are not so clearcut as those of previous studies, they indicate that projective responses in doll play reflect to some extent the momentary state of the person as well as his more persistent motivations.

The question of the desirability of adhering to the conventional standards of test reliability, raised with regard to the doll play technique, might also be considered with reference to other projective techniques. There appears to be some incompatibility between the reliability of a test and its sensitivity. Reliability is a desirable attribute of a measuring instrument which purports to measure stable characteristics, i.e., char-

acteristics which are not appreciably influenced by situational variations. If we assume that projective techniques are sensitive to changing motivational conditions of the organism, then a high degree of session-to-session consistency might not be expected on characteristics which vary in different situational contexts. Greater consistency might legitimately be expected, however, on more stable characteristics which are indicators of personality style, e.g., spontaneity, constriction.

More adequate methods for the determination of the clinical reliability of projective techniques are needed. The usual methods of item reliability are inappropriate for techniques where single responses have little meaning in themselves, but where clinical interpretation is based on the total pattern of response.

F. *Limitations of the present findings.* In evaluating the significance of the present findings, several factors associated with the experimental procedure and the nature of the doll play situation should be taken into consideration.

The significance of the effects of frustration was obscured, not only by great individual variability, but also by the fact that many types of behavior changed simply as a result of the previous session of play. Such changes from session to session are commonly found in doll play. Statistical analyses of differences in change between control and experimental groups, tend to be so far removed from the original data that the meaning of these statistical tests is unclear.

In addition, the nature of the doll play situation should be considered. It was apparent to the experimenter that some children did not find the doll play interesting. For these children, the doll play situation itself became frustrating after a few minutes of play. This fact would tend to complicate interpretation of the effects of antecedent frustration. However, since the children were randomly assigned to the groups, it might be assumed that the frustrating effects of doll play would be randomized for control and experimental groups. Therefore, the significance of changes due to antecedent conditions, especially those in the direction of theoretical expectations, would not be entirely lost by the frustrating nature of the doll play situation.

A further limitation of the study was due to the inadequacy of the recording categories. Since only a few quantifiable characteristics of each child's play were recorded, several kinds of potentially valuable analyses were not feasible. For instance, the effects of the frustration experiences on specific play content could not be analyzed, nor could the session-to-session reliability of dramatic content be determined.

G. *Indications for further research.* Inasmuch as the categories selected for quantitative treatment of the data did not give a sufficiently detailed picture of the children's doll play behavior to permit analysis of the effects on play content of antecedent experiences, in future studies it would be desirable to obtain a more complete account of the doll play by a combination of qualitative and quantitative techniques.

Further studies are needed on the validity of the technique through comparison of doll play patterns with personality data obtained from different sources—observation in the home, in school, in experimental situations. A crucial problem is the determination of the extent of agreement between the actual family relationships and these relation

ships as depicted in doll play. Studies of the significance of predominantly literal, reproductive play as against predominantly wish-fulfillment fantasy would have interesting theoretical and practical implications. Comparisons of normal children and children disturbed by unpleasant parental relationships might give some indication of the diagnostic significance of discrepancies between the actual life situation and play fantasy. Although the meaning of discrepancies between the child's play and actual home conditions may vary for individual children, certain common types of discrepancies may possible be discovered. Further studies of reliability might be concerned with the degree of consistency in the portrayal of specific aspects of family relationships, in manner of approach to the materials, and in modes of expressing aggression.

Chapter V

SUMMARY AND CONCLUSIONS

THE purpose of this investigation was to study the effects of antecedent frustration on the projective play behavior of preschool children.

Sixty preschool children, 30 boys and 30 girls, ranging in chronological age from 3-0 to 5-7, were randomly assigned to three groups—control, failure, and satiation. Their play with dolls and miniature furniture organized as a house was observed during two 30-minute sessions, separated by an interval of one or two days. Experimental conditions—failure and satiation—were introduced preceding the second session of play. The failure experience involved the construction of a tinker toy windmill which was too difficult for the children. The satiation experience involved working at a monotonous task—the placement of pegs in a pegboard—for twenty to thirty minutes.

The play behavior of the children on the initial session preceded by control conditions was compared with that on the second session preceded by frustration conditions. Changes in behavior from the first to the second session for a control group were compared with the changes for the two frustration groups.

Control, failure, and satiation groups showed reliable increases on the second play session in total amount of aggressive behavior, in nonstereotyped aggression, and in tangential aggression. All groups showed significant decreases in routine thematic behavior, and in latency of aggression. In addition, the failure and satiation groups increased significantly in tangential behavior. The satiation group also increased significantly in amount of individualized thematic play and in inappropriate thematic play.

Statistical analysis of the mean differences between changes for the control and the frustration groups from the first to the second play session revealed few significant differences, although practically all differences were in the direction of theoretical expectations.

Comparison of the doll play behavior of boys and girls indicated that the boys exceeded the girls reliably in amount of organizational, exploratory, tangential, and aggressive play. Girls showed a significantly greater amount of routine thematic play, a greater average duration of a thematic sequence, and a greater latency of aggression.

Comparison of the effects of frustration on the doll play behavior of boys and girls indicated that the boys, following failure, showed a reliably greater increase than the girls in nonstereotyped aggression and in tangential aggression. Following satiation, the boys showed a reliably greater increase only in tangential aggression. Girls showed a consistent, but unreliable, tendency towards more tangential behavior than boys following both failure and satiation.

As a measure of the consistency of doll play behavior between the first and second play sessions, Pearson-product-moment coefficients of correlation were computed between first and second sessions for each category of doll play behavior. For the control group, correlations ranged from .23 for inappropriate aggression to .86 for routine thematic play; for the combined frustration groups, correlations ranged from .12 for the average

duration of a thematic sequence to .77 for total amount of aggression.

Conclusions

1. Many of the commonly observed effects of frustration on overt behavior are also found in doll play behavior. Antecedent frustration tends to result in increased aggressive play, increased tangential behavior, and play showing regressive characteristics.

2. The findings that children show less play reproductive of everyday family situations and increased aggressive behavior after a previous experience in the doll play situation tend to substantiate clinical observations that the child's inhibition to the expression of aggression is gradually weakened in the permissive atmosphere of the doll play situation.

3. Sex differences found in everyday social behavior are reflected in children's projective doll play.

4. The consistency of children's projective doll play, measured in terms of session to session correlations between single categories of play, is not very great; although some kinds of behavior tend to be more consistent than others.

5. Some aspects of doll play behavior which are considered of clinical significance tend to be affected by antecedent frustrations, while other diagnostically important aspects of behavior are not clearly affected.

1. Allen, F., *Psychotherapy with children*. New York: Norton, 1942.
2. Bach, G. R., Young children's play fantasies. *Psychol. Monogr.*, 1945, 59, No. 2.
3. Barker, R., Dembo, T., and Lewin, K., Frustration and regression: An experiment with young children. *Univ. Ia. Stud. Child Welf.*, 1941, 13.
4. Baruch, D. W., Aggression during doll play in a preschool. *Amer. J. Orthopsychiat.*, 1942, 12, 659-665.
5. Burton, A., The aggression of young children following satiation. *Amer. J. Orthopsychiat.*, 1942, 12, 262-267.
6. Conn, J. H., The play interview: A method of studying children's attitudes. *Amer. J. Dis. Child.*, 1939, 58, 1199-1214.
7. Dembo, T., Der Arger als dynamisches Problem. *Psychol. Forsch.*, 1931, 15, 1-144.
8. Despert, J. L., A method for the study of personality reactions in preschool age children by means of analysis of their play. *J. Psychol.*, 1940, 9, 17-29.
9. Dollard, J., Doob, L., Miller, N., Mowrer, O., and Sears, R., *Frustration and aggression*. New Haven: Yale Univ. Press, 1939.
10. Doob, L. W., and Sears, R. R., Factors determining substitute behavior and the overt expression of aggression. *J. abnorm. soc. Psychol.*, 1939, 34, 293-313.
11. Erickson, E. H., Studies in the interpretation of play. I. Clinical observations of play disruption in young children. *Genet. Psychol. Monogr.*, 1940, 22, 557-671.
12. Escalona, S. K., Play and substitute satisfaction. In R. Barker et al. (Eds.) *Child behavior and development*. New York: McGraw-Hill, 1943, pp. 363-378.
13. Fajans, S., Erfolg, Ausdauer, und Activitat beim Säugling und Kleinkind. *Psychol. Forsch.*, 1933, 17, 268-305.
14. Frank, L., Projective methods for the study of personality. *J. Psychol.*, 1939, 8, 389-413.
15. Freud, A., Introduction to the technique of child analysis. *Nerv. ment. Dis. Monogr. Ser.*, 1928, 48.
16. Kimble, G., Social influences on Rorschach records. *J. abnorm. soc. Psychol.*, 1945, 40, 89-91.
17. Klein, M., The *psychoanalysis of children*. (Trans. by Strachey), New York: Norton, 1932.
18. Lerner, E., and Murphy, L. B., Methods for the study of personality in young children. *Monogr. Soc. Res. Child Develpm.*, 1941, 6, No. 4.
19. Levy, D., Hostility patterns in sibling rivalry experiments. *Amer. J. Orthopsychiat.*, 1936, 6, 183-257.
20. Leuba, C., and Lucas, C. The effects of attitudes on descriptions of pictures. *J. exper. Psychol.*, 1945, 35, 517-524.
21. Lewin, K., *Dynamic theory of personality*. (Trans. by D. K. Adams and K. E. Zener). New York: McGraw-Hill, 1935.
22. Lindquist, E. F., *Statistical analysis in educational research*. New York: Houghton Mifflin, 1940.
23. MacFarlane, J. W., Problems of validation inherent in projective methods. *Amer. J. Orthopsychiat.*, 1942, 12, 405-410.
24. Miller, N. E. and Dollard, J., *Social learning and imitation*. New Haven: Yale Univ. Press, 1941.
25. Murphy, L. B., and Horowitz, R., Projective methods in the psychological study of children. *J. exp. Educ.*, 1938, 7, 133-140.
26. Murray, H. A., Jr., The effect of fear upon estimates of the maliciousness of other personalities. *J. soc. Psychol.*, 1933, 4, 310-329.
27. Phillips, R., Doll play as a function of the realism of the materials and the length of the experimental session. *Child Develpm.*, 1945, 16, 123-143.
28. Pintler, M. H., Doll play as a function of experimenter-child interaction and initial organization of materials. *Child Develpm.*, 1945, 16, 145-166.
29. Pintler, M. H., Phillips, R., and Sears, R. R., Sex differences in the projective doll play of preschool children. *J. Psychol.*, 1946, 21, 73-80.
30. Robinson, E. F., Doll play as a function of the doll family constellation. *Child Develpm.*, 1946, 17, 99-119.
31. Rodnik, E. H., and Klebanoff, S. G., Projective reactions to induced frustration as a measure of social adjustment. *Psychol. Bull.*, 1942, 39, 489. (Abstract).
32. Rogerson, C. H., *Play therapy in childhood*. London: Oxford Univ. Press, 1939.
33. Rosenzweig, S., Mowrer, O. et al. Frustration as an experimental problem. *Character and Personality*, 1938, 7, 126-160.
34. Rosenzweig, S., Fantasy in personality and its study by test procedures. *J. abnorm. soc. Psychol.*, 1942, 37, 10-51.
35. Sanford, R. N., The effects of abstinence from food upon the imaginal processes: A further experiment. *J. Psychol.*, 1937, 3, 145-159.
36. Sears, P. S., Levels of aspiration in academically successful and unsuccessful children. *J. abnorm. soc. Psychol.*, 1940, 35, 498-536.
37. Sears, R. R., Initiation of the repression sequence by experienced failure. *J. exp. Psychol.*, 1937, 20, 570-580.
38. Sears, R. R., Hovland, C. I., and Miller, N.

E., Minor studies of aggression: I. Measurement of aggressive behavior. *J. Psychol.*, 1940, **9**, 275-294.

39. Sears, R. R., Non-aggressive reactions to frustration. *Psychol. Rev.*, 1941, **48**, 343-346.
40. Sears, R. R., Success and failure: A study in motility. In Q. McNemar and M. A. Merrill (Eds.) *Studies in personality*. New York: McGraw-Hill, 1942, 235-258.
41. Sears, R. R., Survey of objective studies of psychoanalytic concepts. *Soc Sci. Res. Council Bull.*, 1943, No. 51.
42. Sears, R. R., Pintler, M. H., and Sears, P. S. Effect of father separation on preschool children's doll play aggression. *Child Develpm.*, 1946, 17, 219-243.
43. Swift, J. W., Matching of teacher's descriptions and Rorschach analyses of preschool children. *Child Develpm.*, 1944, 15, 217-224.
44. Swift, J. W., Reliability of Rorschach scoring categories with preschool children. *Child Develpm.*, 1944, 15, 207-216.
45. Symonds, P. M., Play technique as a test of readiness. *Understanding the Child*, 1940, **9**, 8-14.
46. Terman, L., et al., Psychological sex differences. In L. Carmichael (Ed.), *Manual of child psychology*, New York: John Wiley, 1946.
47. Uppegraff, R., Keister M., Heiliger, L., et al. Studies in preschool education. I. *Univ. Ia. Stud. Child Welf.*, 1937, 14, 29-82.

150.8
P974
v. 62
no. 6
Psychological monographs: general
and applied - The effect of
antecedent frustration on projective
play, by Leon J. Yarrow

Recent Issues Available

APPLIED PSYCHOLOGY MONOGRAPHS

(Order from Stanford University Press, Stanford University, Calif.

17. An Evaluation of Selected Schools of Nursing with Respect to Certain Educational Objectives By Helen Nahm. Foreword by W. W. Cook. 1948. $2.00.

16. Work Adjustment in Relation to Family Backgrounds By Jeanette G. Friend and Ernest A. Haggard. 1948. $2.00.

15. The Use of Diagnostic Categories in Clinical Counseling. By Harold B. Pepinsky. Foreword by W. W. Cook. 1948. $2.00.

14. Music in Relation to Employee Attitudes, Piecework Production, and Industrial Accidents. By Henry Clay Smith. Foreword by Joseph Tiffin. 1947. $1.75.

13. An Evaluation of Non-Directive Psychotherapy by Means of the Rorschach and Other Indices. By George A. Muench. Foreword by Carl. Rogers. 1947. $2.00.

12. The Psychobiological Program of the War Shipping Administration Edited by George G. Killinger. Foreword by Captain Edward Macauley, USN (Ret.). Introductory chapter by Justin K. Fuller. Paper, $3.00; cloth, $4.00.

11. Studies of Teachers' Classroom Personalities. III. Follow-up Studies of the Effects of Dominative and Integrative Contacts on Children's Behavior. By Harold H. Anderson, Joseph E. Brewer, and Mary Frances Reed. Foreword by J. Wayne Wrightstone. 1946. $2.00

10. Enrollment Increases and Changes in the Mental Level of the High-School Population. By F. H. Finch. Foreword by W. S. Miller. 1946. $1.25.

9. The Adolescent in Social Groups. Studies in the Observation of Personality. By Frances Burks Newman. Introduction by Harold E. Jones. Paper, $1.25.

8. Studies of Teachers' Classroom Personalities. II. Effects of Teachers' Dominative and Integrative Contacts on Children's Classroom Behavior. By Harold H. Anderson and Joseph E. Brewer. Foreword by Frank N. Freeman. 1946. $1.50.

7. Prediction of the Adjustment and Academic Performance of College Students by a Modification of the Rorschach Method. By Ruth L. Munroe. Foreword by Gardner Murphy. 1945. $1.25.

6. Studies of Teachers' Classroom Personalities. I. Dominative and Socially Interactive Behavior of Kindergarten Teachers. By Harold H. Anderson and Helen M. Brewer. Foreword by Harold E. Jones. 1945. $2.00.

5. Experiments on the Effects of Music on Factory Production. By Willard A. Kerr. 1945. $1.00.

4. The Patterning of Listener Attitudes toward Radio Broadcasts: Methods and Results. By John Gray Peatman and Tore Hallonquist. 1945. $1.00.

Recent Issues Available

PSYCHOLOGICAL MONOGRAPHS

(Order from Amer. Psychological Association, 1515 Massachusetts Ave. N.W., Washington 5, D.C.)

Numbers of Volume 62 now in Print (1948)

292. Acculturation and Illness. By JURGEN RUESCH, ANNEMARIE JACOBSON, and MARTIN B. LOEB. $1.00.

291. The Frequency and Affective Character of Childhood Memories. By SAMUEL WALDFOGEL. $1.00.

290. A Study of Thumb- and Finger-Sucking in Infants. By MARY S. KUNST. $1.25.

289. Some Psychological Apparatus: A Classified Bibliography. By T. G. ANDREWS. $1.00.

288. Attitudes of German Prisoners of War: a Study of the Dynamics of National-Socialistic Followership. By H. L. ANSBACHER. $1.00.

VOLUME 61, 1947

287. A Tachistoscopic Study of the Order of Emergence in the Process of Perception. By ANNA GERTRUDE DOUGLAS. $3.00.

286. Studies in Pilot Selection. By G. GORHAM LANE and RONALD R. GREENE. $.75.

285. A Systematic Approach to the Construction and Evaluation of Tests of Ability. By JANE LOEVINGER. $1.25.

284. A Comparison of the Use of Direct and Indirect Phrasing in Personality Questionnaires. By ALBERT ELLIS. $1.00.

283. The Use of Aptitude Tests in the Selection of Radio Tube Mounters. By LOUIS VINCENT SURGENT. $1.00.

282. Sex Differences in Dispersion at the High School and College Levels. By JESSE B. RHINEHART. $.75.

VOLUME 60, 1946

281. Changes in Personal, Social, and Intellectual Behavior of Children Originally Classified as Feebleminded. By BERNARDINE G. SCHMIDT. $3.50.

280. Children's Preference for Goals Easy or Difficult to Obtain. By IRVIN L. CHILD. $.75.

279. Children's Textbooks and Personality Development: An Exploration in the Social Psychology of Education. By IRVIN L. CHILD, ELMER H. POTTER, and ESTELLE M. LEVINE. $1.25.

278. Factors Associated with Binet IQ Changes of Preschool Children. By BETH L. WELLMAN and BOYD R. MCCANDLESS. $.75.

277. An Analysis of Certain Psychological Tests Used for the Evaluation of Brain Injury. By STEWART G. ARMITAGE. $1.25.

GEORGE BANTA PUBLISHING COMPANY, MENASHA, WISCONSIN